RESPONSES to DATA REQUESTS of DECEMBER 21, 2001

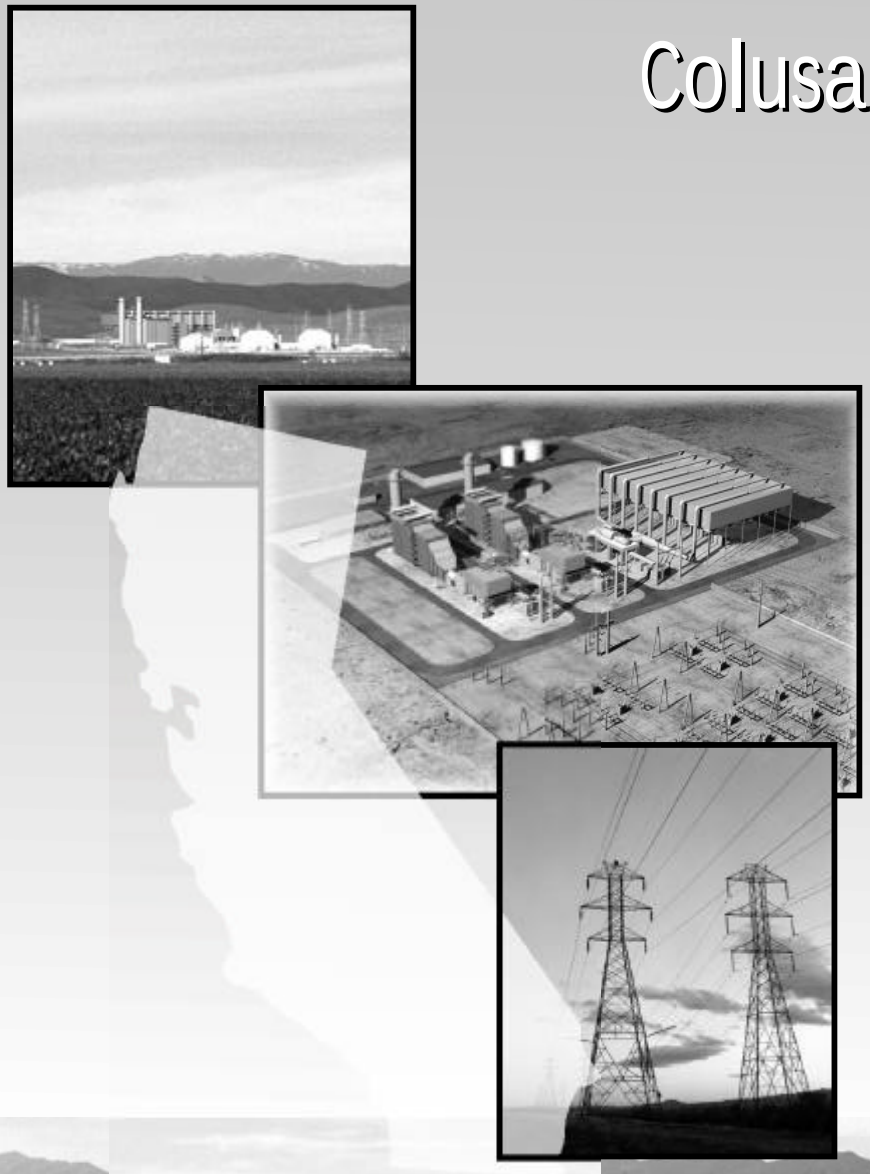
Application for Certification (01-AFC-10)

for

COLUSA POWER PLANT PROJECT

Colusa County, California

January 2002



Prepared for:

Reliant Energy™

Prepared by:

URS

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AIR QUALITY

BACKGROUND [121 THROUGH 125]

The applicant has indicated that emission reduction credits to offset the project's NO_X and VOC emissions will be obtained by repowering the adjacent PG&E Delevan Compressor Station.

DATA REQUEST

121. Please provide documentation that PG&E has agreed to the repowering of the Delevan Compressor Station and that stipulates the amount of NO_X offsets that the applicant has the rights to as a result of the repowering.

RESPONSE

Reliant and PG&E are actively negotiating an agreement which would allow for the replacement of the two existing Frame 3 Turbines at the Delevan Compressor Station with significantly lower emitting turbines. Attached to this response is a copy of a letter from PG&E dated December 21, 2001, which was submitted by PG&E to the California Energy Commission on December 21, 2001, and docketed on January 3, 2002. This letter, Attachment 121-1, documents that PG&E intends to repower the Delevan Compressor Station and that when the repowering is complete, PG&E will transfer the resulting emission reduction credits (ERCs) to Reliant.

Reliant's response to Data Request 14, which was submitted to the California Energy Commission on September 12, 2001, included a copy of theMemorandum of Understanding (MOU) between Reliant and PG&E. The MOU states, in part, that "ERC's generated by the installation of the new compression equipment up to a maximum of 300 TPY [tons per year] of useable NO_X offsets would be transferred to, and become permanent property of, Reliant Energy." For the sake of completeness, another copy of this MOU, Attachment 121-2, is attached in response to Data Request 121.

In September 2001, PG&E filed an application with the Colusa County Air Pollution Control District (CCAPCD) for the compressor station modification. The purpose of that modification as stated in the application was:

> "PG&E proposes to install the two replacement gas turbines in order to create Emission Reduction Credits (primarily NO_X) for use by a third party. This third party will use the ERC's to offset the emission increases associated with the operation of a new power plant in Colusa County. These replacements are considered functionally equivalent replacements. In other words, the pipeline capacity and natural gas flow through the Station will not change as a result of the replacements."

CCAPCD, as part of their review of the PG&E application, has quantified the actual NO_X ERCs available due to this modification. Actual ERCs will be somewhat less than 300 TPY. Quantification of the actual amount of NO_X ERCs available to Reliant from the modification of the compressor station is provided below in response to Data Request 124.

ATTACHMENT 121-1

December 21, 2001

By facsimile: 916 - 654-3882

Ms. Kristy Chew
Project Manager
Systems Assessment & Facility Siting Division
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814

Re: Colusa Power Plant ("Plant") Application No. 01-AFC-10 filed by Reliant Energy Colusa County, LLC ("Reliant") at the California Energy Commission ("CEC")

Dear Ms. Chew,

PG&E understands that the CEC has requested written confirmation of certain matters pertaining to the Delevan Compressor Station ("Station"), which is owned by Pacific Gas and Electric Company ("PG&E") and located near the proposed site of Reliant's Plant. The purpose of this letter is to confirm that Reliant and PG&E are currently negotiating the terms of an agreement ("Agreement") which would provide for (1) the replacement of PG&E's existing Frame 3 natural gas fired turbines at the Station with new turbines that we have been informed would significantly reduce emissions (as described in PG&E's application for an Authority to Construct submitted to the Colusa County Air Pollustion Control District) and is expected to create emission reduction credits ("ERCs") and (2) the transfer of the newly created ERCs to Reliant for use in connection with the permitting of the Plant.

Replacement of the existing compressors at the Station is currently contemplated to allow the surrender of the ERC's at least one month prior to the commercial operation of the Plant.

Based on our negotiations to date, Reliant and PG&E anticipate executing the proposed Agreement by the end of January 2002. Furthermore, Reliant and PG&E do not anticipate the bankruptcy of PG&E will impose any material barriers to the Agreement.

If you would like further information regarding the Agreement or other matters set forth above, please do not hesitate to contact either Dave Anderson with PG&E at 415.973.6659 or Brian Walker with Reliant at 281.813.8424.

Sincerely,

Pacific Gas and Electric Company

By: _____
David W. Anderson,
Attorney, PG&E Law Department

Reliant Energy Colusa County LLC

By: _____
Brian Walker,
Manager, Project Development

P.O. Box 286
Houston, TX 77001-0286

September 7, 2001

Mr. Michael A. Katz
Vice President and California Gas Transmission
Pacific Gas and Electric Co.
245 Market Street, Room 1436
San Francisco, CA 94105-1702

Dear Mr. Katz:

This Memorandum of Understanding ("MOU") is entered into this 10th day of Sept, 2001 by and between Reliant Energy Colusa County LLC ("Reliant Energy") and Pacific Gas and Electric Company ("PG&E"). Reliant Energy desires to construct an electric power generation plant near Williams, California, as further described below. Reliant Energy recently approached PG&E to determine if PG&E would be willing to create certain Emission Reduction Credits ("ERC") through the reduction of current emissions associated with the PG&E Delevan Compressor Station ("Delevan"). In order to create such ERC's, Reliant Energy stated that it would consider installing, at its own costs, new compression equipment at Delevan on PG&E's natural gas transmission Line 400/401, which supplies natural gas transportation to the public. In exchange for installation by Reliant Energy of a new compression system at Delevan that would reduce emissions from current levels, PG&E would be willing to transfer certain of the ERC's created by the installation of such new compression to Reliant Energy under the conditions described in this MOU.

The reduction of current emissions at Delevan is contemplated to be achieved by replacing the two existing Frame 3 compressors with a new significantly less emitting compression system. A portion of the resulting ERC's will be utilized by Reliant Energy to offset emissions produced from the operation of the proposed Reliant Energy Colusa Power Project, currently contemplated to be a nominal 500MW natural gas fired combined cycle plant ("Project"). The Project is currently in the siting process at the California Energy Commission ("CEC"). Both PG&E and Reliant Energy understand that certain criteria must be achieved in order for both parties to effectuate this transaction. These include the following:

- The new compressors employed at Delevan must meet PG&E's reliability and operational criteria and will become the permanent property of PG&E.
- Replacement of the existing Frame 3 Compressors and the associated downtime of the Delevan Station must be coordinated and planned in accordance with PG&E's gas

The parties pledge best efforts to decide by September 30, 2001 whether or not to begin negotiating a Definitive Agreement regarding the new compression system at Delevan or to terminate this MOU. If PG&E and Reliant Energy begin negotiation of a Definitive Agreement, both parties shall retain the right to terminate this MOU at any time prior to execution of the Definitive Agreement by providing written notice to the other party, but pledge best efforts to finalize any Definitive Agreement so that the CEC is not hindered in issuing a final decision on the Reliant Energy Colusa Power Project by February 1, 2002.

Upon execution of this MOU, Reliant Energy shall provide PG&E with a cash advance of $50,000 (the "Advance") to cover PG&E's anticipated costs and expenses, including salaries, indirects and overheads, to proceed with work necessary prior to execution of any Definitive Agreement. Should either party terminate this MOU, or at such time as both parties execute a Definitive Agreement, or at Reliant's reasonable request, PG&E shall return all of the unspent cash Advance to Reliant Energy. If the Advance is expended, Reliant Energy shall provide additional funds necessary for the work to proceed, or terminate this MOU. PG&E shall maintain an accounting of such work and costs, subject to Reliant Energy's review thereof.

All information furnished by one party to the other party relating to activities contemplated by this MOU shall be kept strictly confidential; provided, however, that information or a portion thereof may be disclosed, upon prior notice to the other party, to regulatory agencies having jurisdiction over the transaction contemplated hereby.

If you agree to and accept the terms and provisions of this MOU, please execute in the space provided for your signature below and return a copy to Brian Walker at 1111 Louisiana St., Houston, Tx. 77002.

Sincerely,

RELIANT ENERGY COLUSA COUNTY, L.L.C.

By: _____ Date 9/7/01
J. Douglas Divine
Sr. Vice President

AGREED TO & ACCEPTED BY:

PACIFIC GAS & ELECTRIC COMPANY

By: _____ Date 9/10/01
Michael A. Katz
Vice President and California Gas Transmission

DATA REQUEST

122. Please provide an anticipated schedule for the repowering and a comparison of that schedule with the anticipated construction and operating schedule for the CPPP.

RESPONSE

As discussed in PG&E's December 21, 2001 letter, Attachment 121-1, both Reliant and PG&E anticipate the replacement of the two existing Frame 3 compressors to be completed and the new turbines to be operational within a timeframe to allow the ERCs to be surrendered at least one month prior to commercial operation of the Colusa Power Plant (CPP).

The schedule for construction of the compressor station modification was included in the response to Data Request 3a previously provided to the CEC (see Table 3-1 of that submittal). The compressor station modification is estimated to occur within months 15 through 18 of the CPP construction period. The NO_X emission reductions will be in place at least 30 days prior to the startup of the CPP, consistent with the offset requirements of the CCAPCD regulations. The schedule for construction of the compressor station modification is the best estimate available at this time. Some adjustment of the schedule may occur. However, the analysis of construction impacts to air quality conducted for the AFC and in response to subsequent data requests would still apply because it is a conservative, worst-case analysis, unaffected by up to a several-month shift either way in the schedule of the compressor station modification.

DATA REQUEST

123. Based on information provided by the local air district, the repowering of the compressor station would create emission increases in VOC and PM_{10} emissions. Please identify what is proposed to mitigate those emission increases.

RESPONSE

The Applicant will offset the potential increases of emissions of both VOC and PM_{10} due to the conversion of the compressor station. The potential VOC emissions increase of about 18 TPY will be offset by simultaneous reduction of NO_X at the compressor station source. An inter-pollutant offset ratio trading NO_X for VOC of 1.4 to 1 will be used. A distance ratio of 1 to 1 will be used. The potential PM_{10} emissions increase of less than 2 TPY will be offset by PM_{10} reduction off site, either agricultural burning ERCs or road paving ERCs. Potential VOC and PM_{10} emission increases are quantified in the response to Data Request 124. How these increases will be offset is provided in the response to Data Request 134. Justification of the NO_X for VOC inter-pollutant offset ratio is provided in the response to Data Request 125.

DATA REQUEST

124. Please provide the documentation (i.e., source tests, emission calculations) that was used to determine the quantity of the emission reductions available from the repowering of the PG&E compressor station.

RESPONSE

Copies of the source tests that were submitted to CCAPCD by PG&E that support the PG&E permit application for the compressor station modification are included as Attachments 124-1 and 124-2. The emission calculations that quantify the amount of ERCs available have been previously submitted to the CEC in an e-mail from Les Fife, CCAPCD consultant, dated December 10, 2001. A copy of this email and the attached calculations are provided in Attachment 124-3.

For Attachment 124-1 and Attachment 124-2, see documents: “124-1.pdf” and “124-2.pdf”.

SEE ATTACHMENT 124-1.pdf

SEE ATTACHMENT 124-2.pdf

ATTACHMENT 124-3

Les Fife
<Fife_Env@compuserve.com>

12/10/2001 10:01 AM

To: Keith Golden <Kgolden@energy.state.ca.us>, Carol Burke <COB3@pge.com>, Mark Strehlow <mark_strehlow@urscorp.com>, Harry Krug <hak@colusanet.com>, Charles Price <cprice@colusanet.com>

cc:

Subject: Delevan ERCs for Colusa Power Plant Project

As requested by the California Energy Commission at the November 27, 2001

meeting, the attached Excel spreadsheet shows the calculations for the

potential PG&E Delevan Compressor Station ERCs.

The ERCs will be created from the replacement of the uncontrolled GE Frame

3 gas turbines with new Solar Taurus turbines with SoLoNox combustors.

If you have any questions please give me a call at (530) 668-1559.

Les

DelevanERCs.XLS

ATTACHMENT 124-3

GE FRAME 3 UNITS K-1 AND K-2

Baseline emissions 1999-2000

		NOx	ROC	PM10	CO	SOx
Lbs	Quarter 1	195665.54	892.90	931.58	3059.78	138.03
Tons		97.83	0.45	0.47	1.53	0.07
	Quarter 2	142654.10	691.93	869.79	3637.41	109.88
		71.33	0.35	0.43	1.82	0.05
	Quarter 3	133220.40	674.63	945.89	4001.81	107.83
		66.61	0.34	0.47	2.00	0.05
	Quarter 4	180094.74	825.06	930.81	3244.70	130.17
		90.05	0.41	0.47	1.62	0.07

SOLAR TAURUS REPLACEMENT TURBINES

Projected future emissions

		NOx	ROC	PM10	CO	SOx
Lbs	Quarter 1	30553.96	10654.61	1939.08	37210.50	272.88
Tons		15.28	5.33	0.97	18.61	0.14
	Quarter 2	26770.28	9335.18	1698.95	32602.50	239.09
		13.39	4.67	0.85	16.30	0.12
	Quarter 3	27501.89	9590.31	1745.38	33493.50	245.62
		13.75	4.80	0.87	16.75	0.12
	Quarter 4	29556.31	10306.71	1875.77	35995.50	263.97
		14.78	5.15	0.94	18.00	0.13

ATTACHMENT 124-3

Difference between baseline and future emissions

Unadjusted ERCs		**NOx**	**ROC**	**PM10**	**CO**	**SOx**
Lbs	Quarter 1	165111.58	-9761.70	-1007.50	-34150.72	-134.84
Tons		82.56	-4.88	-0.50	-17.08	-0.07
	Quarter 2	115883.82	-8643.25	-829.17	-28965.09	-129.21
		57.94	-4.32	-0.41	-14.48	-0.06
	Quarter 3	105718.51	-8915.68	-799.49	-29491.69	-137.79
		52.86	-4.46	-0.40	-14.75	-0.07
	Quarter 4	150538.43	-9481.65	-944.96	-32750.80	-133.80
		75.27	-4.74	-0.47	-16.38	-0.07

Adjusted emission reduction credits for Colusa APCD Community Bank

95% Adjusted ERCs		**NOx**	**ROC**	**PM10**	**CO**	**SOx**
Lbs	Quarter 1	156856.00	-9761.70	-1007.50	-34150.72	-134.84
Tons		78.43	-4.88	-0.50	-17.08	-0.07
	Quarter 2	110089.63	-8643.25	-829.17	-28965.09	-129.21
		55.04	-4.32	-0.41	-14.48	-0.06
	Quarter 3	100432.58	-8915.68	-799.49	-29491.69	-137.79
		50.22	-4.46	-0.40	-14.75	-0.07
	Quarter 4	143011.51	-9481.65	-944.96	-32750.80	-133.80
		71.51	-4.74	-0.47	-16.38	-0.07
	Tons =	255.19				

ATTACHMENT 124-3

5% ERCs for CB		NOx	ROC	PM10	CO	SOx
Lbs	Quarter 1	8255.58	0.00	0.00	0.00	0.00
Tons						
	Quarter 2	5794.19	0.00	0.00	0.00	0.00
	Quarter 3	5285.93	0.00	0.00	0.00	0.00
	Quarter 4	7526.92	0.00	0.00	0.00	0.00

DATA REQUEST

125. Please provide the technical analysis that supports the interpollutant offset ratio proposed for the NO_X for VOC interpollutant offsets. This data request was initially requested under Data Request 19e, but no response was provided with the first set of Data Responses.

RESPONSE

The previously submitted response to Data Request 19e stated that this information would be provided to the CEC when it became available. The information was provided to the CEC and CCAPCD in an e-mail from URS dated October 3, 2001. The CCAPCD has provided verbal acceptance of the inter-pollutant offset ratio of 1.4 ton of NO_X per ton of VOC proposed in that submittal. A hard copy of the e-mail with attachments is provided in Attachment 125-1. Item 9 of the first document provided in Attachment 125-1 responds directly to this data request.

ATTACHMENT 125-1

Mark Strehlow

10/03/2001 10:12 AM

To: Fife_Env@compuserve.com
cc: kgolden@energy.state.ca.us, dfurstenwerth@reliant.com, Denise Heick/SanFrancisco/URSCorp@URSCORP, hak@mako.com
Subject: Supplemental Information Requested by CCAPCD on 9/26/01

Les:

This email and its supporting attachments provides Reliant Energy's response to the request for supplemental information made by CCAPCD during our meeting in your offices on 9/26/01 regarding the proposed Colusa Power Plant. The Word file named "Supplemental Information Requested by CCAPCD on 92601.doc" contains the responses. The response format is the same as has been used in previous submittals. The CCAPCD request is provided followed by the Applicant's response. The five other attached files support the responses.


Supplemental Information Requested by CCAPCD on 92



Attachment 2-1, AFC Section 8.1 Tables (Revise Figure 9-1 ozone isopleth.p



Table 9-1 Emissions Inventory 200(Figure 9-2 Bay Area 2001 Plan


Figure 9-3 Livermore ozone isopleth, expanc

Note: Use Windows/Excel to launch Figure 9-3 and answer "No" when queried about links. Please let me know if you have any problems launching any of the attachments. All of this material will be provided in hard copy in a separate transmittal. Please contact Derek Furstenwerth or me if you have any questions or require additional information.

Regards,

Mark Strehlow
URS Corporation

Reliant Energy
Colusa Power Plant Project

Supplemental Information Requested by CCAPCD on 9/26/01

1. Provide the CCAPCD consultant, Mr. Les Fife, with a complete copy of *Responses to Data Requests of August 22, 2001. Application for Certification (01-AFC-10) for Colusa Power Plant Project.*

Response: A copy of this document was sent to Mr. Fife by overnight courier for arrival on 9/28/01.

2. Revise and provide all tables from the AFC Air Quality section that need to be updated to reflect the lowered concentrations and emission rates for CO, VOC and any other pollutants.

Response: This request duplicates a request made by the staff of the CEC during the Data Response / Issue Resolution Workshop held in Colusa on 9/26/01. The concentrations of CO and VOC and other pollutants were the subject of a letter from Mr. Derek Furstenwerth of Reliant to Mr. Ed Pike of EPA dated 9/19/01. It was agreed in this letter that the concentrations of CO and VOC would be reduced, and therefore, the emission rates were similarly reduced. The revised tables containing reduced emission rates are provided in Attachment 2-1. They are provided in the format with vertical lines in the margin to indicate rows wherein changes have been made. All parties agreed that the corresponding air dispersion modeling results presented in the AFC would not be revised. Because of the wide margin of compliance with all applicable standards and the fact the emissions went down, the original modeling results will be used as representing a worst-case analysis.

3. Provide normal and maximum fuel use rate for each combustion gas turbine, each duct burner, the auxiliary boiler and the diesel firewater pump.

Response: This information is provided in Table 3-1.

Table 3-1
Colusa Power Plant Equipment Fuel Use Rates[a]

Source	Normal	Maximum
Combustion Gas Turbine, each	1592[b]	1692[c]
Duct Burner, each	500[b]	553[d]
Auxiliary Boiler	various	44[e]
Diesel Fire Water Pump[f]	1.3[g]	2.6[h]

a. Millions of Btu per hour (LHV), natural gas unless noted
b. 100% load, 60F average annual temperature
c. 100% load, 18F winter minimum temperature
d. Full fire, 114F summer maximum temperature
e. Maximum name plate rating
f. Fired exclusively on diesel fuel,

g. Weekly testing at 50% load.
h. 100% load or 368 brake horsepower (bhp) at 0.36 pound of fuel/bhp-hr and 19,400 Btu/pound of fuel (HHV)

4. Confirm the heating value used in the application for the natural gas fuel in units of Btu per standard cubic feet.

Response: The higher heating value of the natural gas fuel is 1,010 Btu per standard cubic foot (see AFC table 3.4-7).

5. Provide the operational definitions of cold, warm and hot starts for the combustion gas turbine generator and HRSG power train.

Response: These terms all are based on the amount of time that has passed after the combustion gas turbine has last combusted fuel. They are defined in Table 5-1.

Table 5-1
Start Type Definitions

Type of Start	**Time Since Last Firing**
Cold Start	Over 72 hours
Warm Start	Between 72 and 8 hours
Hot Start	Less than 8 hours

6. Provide updated hours of operation of the turbines and duct burners per quarter.

Response: See Table 6-1 in *Responses to Data Requests of August 22, 2001. Application for Certification (01-AFC-10) for Colusa Power Plant Project*

7. Confirm that the best available control technology (BACT) emission limit for VOC emissions from the power train will be a dual emission limit.

Response: This is correct. This limit was modified in a letter from Mr. Derek Furstenwerth of Reliant to Mr. Ed Pike of EPA dated 9/19/01. A copy of this letter was provided to CCAPCD earlier. A portion of that letter is provided below for convenience.

> **BACT for VOC**
>
> The AFC and the PSD application intended to state that the BACT limit for VOC will be 2.0 ppmvd at 15% oxygen, not to be exceeded at any time other than startups and shutdowns. This applies to times when the duct burners are operating. At times when the duct burners are not operating the VOC limit will be 1.1 ppmvd.

8. Provide the emissions inventory for toxic air contaminants from the diesel fire pump similar to what was provided for the HAP from the turbines and auxiliary boiler.

Response: The protocol for modeling the potential health impacts from sources combusting diesel fuel is found in *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines*, California Air Resources Board (CARB), October 2000. The CARB protocol directs that the applicant "use diesel PM as a surrogate for all toxic air contaminant emissions from diesel-fueled engines when determining the potential cancer risk and the noncancer chronic hazard index for the inhalation pathway" (ibid, page 3). Therefore, diesel particulate matter was the only pollutant modeled. The emission rates used for diesel particulate matter are summarized in Table 8-1.

Table 8-1
Emission Inventory for Diesel Firewater Pump Engine

	1-hour Rate		**Annual Rate**	
Pollutant	grams/second	pound/hour	grams/second	pound/year
Diesel PM	0.0164	0.130	0.000213	14.8

9. Write up justification of proposed interpollutant offset ratio proposed for NO_x for VOC.

Response: The NO_x for VOC interpollutant offset ratio depends on many factors including meteorological effects, emissions inventories of NO_x and VOC in the area of interest, and transport of these and other pollutants, such as ozone, into the area of interest. The inter-relationship of these factors has been the subject of many studies throughout California including an ongoing study that encompasses the Colusa County area. However, this ongoing study, known as the Central California Ozone Study, will not be completed in time to provide results meaningful to the permitting effort at hand. Therefore, other studies are used in the following analysis.

The nearest study that has been completed is the Sacramento Area Ozone Study. This study included analysis of emissions sources in Colusa County and looked at ozone formation in the region (Sacramento Area Modeling Analysis for the 1994 State Implementation Plan, Control Modeling Section, Technical Support Division, California Air Resources Board, April 1995). The results of this study are shown on Figure 9-1. Figure 9-1 provides the modeled relationship between NO_x and VOC emission rates and ozone concentrations in units of parts per hundred million (pphm). The scales on the x and y axes of Figure 9-1 are presented in a normalized manner. The body of the report explains that the actual inventory representing the unit emission rate, or "1.0" on the axis, was 268 tons per day of NO_x and 365 tons per day of VOC (ibid. Table VIII-3).

The relationship presented in Figure 9-1, particularly the slope of the ozone isopleth nearest the point of intersection of the location-specific emission inventory, may be used to determine the area-specific interpollutant offset ratio necessary to not exacerbate ozone concentrations. However, the emissions inventory of NO_x and VOC from all sources in Colusa County, as reported by CARB, is 9.51 tons per day of NOx and 9.47 tons per day of VOC (see Table 9-1, source: CARB inventory of Colusa County for year 2000 including stationary, area, mobile and natural sources). Unfortunately, Figure 9-1

provides no ozone isopleth near the point that represents the intersection of these emissions rates. Therefore, this graph cannot be used to determine the area-specific interpollutant offset ratio.

The Bay Area Air Quality Management District (BAAQMD) also has conducted extensive ozone modeling. BAAQMD has produced similar graphs for this relationship in the Livermore area (see attached Figure 9-2, copied from Figure 6 of the San Francisco Bay Area Ozone Attainment Plan for the 1-Hour National Ozone Standard, prepared by the Association of Bay Area Governments, BAAQMD, and the Metropolitan Transportation Commission, Revised September 2001). Comparison of Figures 9-1 and 9-2, with specific attention to the shape of the isopleths, shows that there is a striking resemblance. Comparing the 12 pphm isopleth on Figure 9-1 with the nearly corresponding isopleth (shown as 119 ppb which equals 11.9 pphm) on Figure 9-2, and comparing the 14 pphm isopleth on Figure 9-1 with, again, the nearly corresponding 139 ppb isopleth on Figure 9-2 shows a high degree of similarity.

Figure 9-2 does provide one ozone isopleth in the area of interest. This line represents the 89 ppb (or 8.9 pphm) ozone isopleth. The extreme lower-left-hand portion of Figure 9-2 has been reproduced graphically in a more suitable scale in Figure 9-3. The intersection of the emissions inventory of NO_x and VOC from all sources in Colusa County for year 2000 (9.51 tons per day of NOx and 9.47 tons per day of VOC) has been plotted as Point A on Figure 9-3. Point A falls above the 89 ppb ozone isopleth. For comparison, note that the maximum 1-hour ozone level measured in Colusa in 2000 was 92 ppb (see AFC Table 8.1-2). This agreement further supports the approach used.

The slope of the 89 ppb ozone isopleth, the isopleth nearest Point A, is –1.4 tons per day of NO_x per ton per day of VOC. This means that the predicted ozone concentration would remain constant if a 1.4 ton reduction of NO_x would accompany a 1.0 ton increase of VOC. Therefore, an area-specific offset ratio of NO_x for VOC of 1.4 to 1 is justified by this analysis.

Table 8.1-9
Quarterly and Annual Turbine Operating Conditions

Operating Condition	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Annual
Number of Startups	67	67	67	67	268
Hot Starts	*50*	*50*	*50*	*50*	*200*
Warm Starts	*12.5*	*12.5*	*12.5*	*12.5*	*50*
Cold Starts	*4.5*	*4.5*	*4.5*	*4.5*	*18*
Startup/Shutdown Time (hours)	158.1	158.1	158.1	158.1	632.5
Turbine Operation no Duct Burners (hours)	1301.9	933.9	577.9	1,313.9	4,127.5
Duct Burner Operation (hours)	700	1,092	1,472	736	4,000
Total CTG Operating Hours	2,160	2,184	2,208	2,208	8,760

Table 8.1-10
Criteria Pollutant Emission Rates for the Colusa Power Plant Project Turbines and SCR with Ammonia Injection During Normal Operation
(pounds per hour for both turbines)

Load	Pollutant	Ambient Temperature		
		18ºF	60ºF	114ºF
100%	VOC	4.86	4.56	4.33
	Ammonia Slip	25.44	23.94	22.64
	CO	16.74	15.75	14.89
	NO_X	27.49	25.86	24.46
	SO_2	2.13	2.01	1.90
	PM_{10}	26.5	26.37	26.24
80%	VOC	3.96	3.77	3.40
	Ammonia Slip	21.27	19.91	17.17
	CO	14.00	13.10	11.29
	NO_X	22.98	21.52	18.55
	SO_2	1.80	1.68	1.45
	PM_{10}	26.12	25.99	25.72
60%	VOC	3.38	3.25	3.01
	Ammonia Slip	17.83	16.78	14.44
	CO	11.73	11.04	9.50
	NO_X	19.26	18.14	15.61
	SO_2	1.52	1.43	1.23
	PM_{10}	25.79	25.69	25.45
100% with Duct Burners	VOC	12.36	11.80	11.62
	Ammonia Slip	32.82	31.33	30.82
	CO	21.60	20.62	20.28
	NO_X	35.47	33.85	33.30
	SO_2	2.76	2.64	2.60
	PM_{10}	38.39	38.26	39.40

Table 8.1-12
Criteria Pollutant Annual Emissions for the Turbines

Pollutant	1st Quarter Emissions (ton/qtr)[a]	2nd Quarter Emissions (ton/qtr)[a]	3rd Quarter Emissions (ton/qtr)[a]	4th Quarter Emissions (ton/qtr)[a]	Annual Emissions (tpy)[a,b]
Ambient Temperature (used for entire quarter)	14F (Winter Minimum)	60F (Annual Average	114F (Summer Maximum)	60F (Annual Average)	
NO_x	36.99	42.38	47.82	36.50	163.69
CO	55.12	58.40	61.72	54.82	230.07
VOC	9.50	11.48	13.49	9.41	43.89
PM_{10}	32.80	34.97	38.03	32.86	138.65
SO_2	2.52	2.51	2.56	2.40	10.00

[a] Includes emissions from two turbines.

[b] Emissions include 18 cold startups, 50 warm starts, and 200 hot startups, and 4,000 hours at 100% duct burner capacity at temperature indicated with the balance of the time operating at 100% load at temperature indicated. See Table 8.1-9 for quarterly details.

Table 8.1-13 **Worst-Case Short-Term Emission Estimates (both turbines)**	
1-Hour Emissions (lbs/hr)	
NO_X	198.46
CO	500.00
VOC	27.00
PM_{10}	39.4
SO_2	2.76
3-Hour Emissions (lbs/hr)	
SO_2	2.76
8-Hour Emissions (lbs/hr)	
CO	222.8
24-Hour Emissions (lbs/day)	
NO_X	1,473.9
CO	2,818.8
VOC	403.9
PM_{10}	945.6
SO_2	66.28

Note: Emission estimates not revised to reflect lowered emission rates for CO and VOC

Table 8.1-17
Quarterly and Annual Emissions
of Turbines, Auxiliary Boiler and Firewater Pump Engine

Pollutant	1st Quarter Emissions (tons)[a]	2nd Quarter Emissions (tons)[a]	3rd Quarter Emissions (tons)[a]	4th Quarter Emissions (tons)[a]	Annual Emissions (tons)[a,b]
NO_X	37.226	42.616	48.056	36.736	164.63
CO	55.59	58.87	62.19	55.29	231.95
VOC	9.55	11.53	13.54	9.46	44.09
PM_{10}	32.862	35.032	38.092	32.922	138.90
SO_2	2.536	2.526	2.576	2.416	10.06

Notes:
[a] Includes emissions from two turbines, auxiliary boiler, and emergency firewater pump engine.
[b] See Table 8.1-9 for quarterly details.

Table 8.1-28
Prevention of Significant Deterioration Threshold Triggers

Pollutant	Significant Thresholds (tpy)	Project Emissions Increase (tpy)
SO_2	100	10.11
NO_2	100	164.38
POC	100	43.88
PM_{10}	100	139.54
CO	100	231.79
Lead (Pb)	0.6	<0.6 (negligible)

tpy = tons per year

Table 8.1-32
Summary of Colusa Power Plant Project Best Available Control Technology

Pollutant	Control Technology	Concentration ppm @ 15% O_2 dry
NO_X	Dry low-NO_X combustors and SCR with ammonia injection	2.0
CO	Catalytic oxidation	2
POC	Catalytic oxidation	< 2.0 with duct firing and < 1.1 without duct firing
SO_X	Pipeline quality natural gas	<1.1
PM_{10}	Pipeline quality natural gas	Not Applicable

Notes:
CO = carbon monoxide
NO_X = nitrogen oxides
PM_{10} = particulate matter less than 10 microns in diameter
POC = precursor organic compounds
SO_X = sulfur oxides

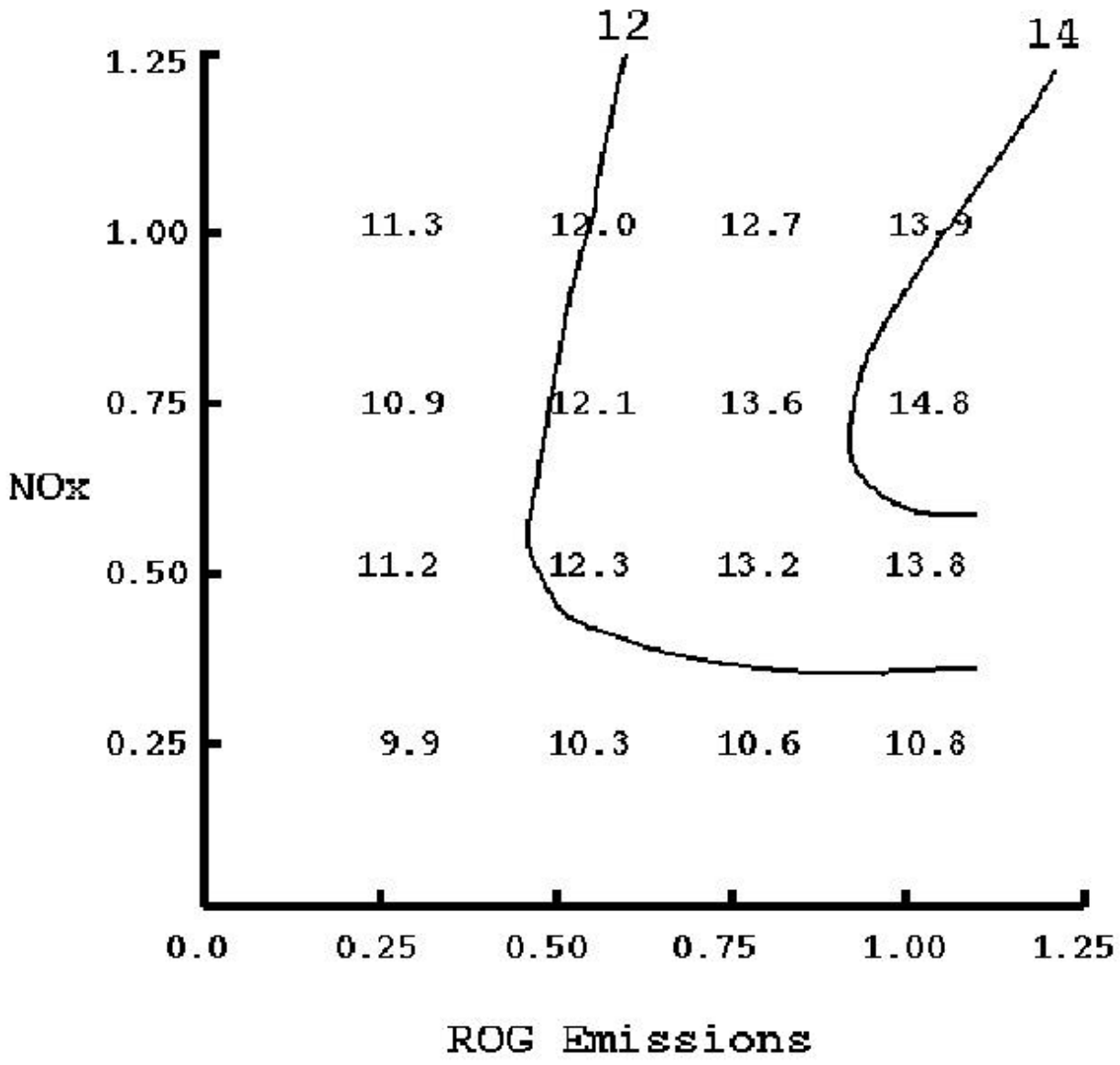

Figure 9-1: Sacramento Area Ozone Study -- Simulated Ozone -- July 13, 1990

SAN FRANCISCO BAY AREA

OZONE ATTAINMENT PLAN

FOR THE 1-HOUR NATIONAL OZONE STANDARD

REVISED

SEPTEMBER 2001

For further information:

Planning and Research Division
Bay Area Air Quality Management District
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San Francisco, CA 94109

(415) 749-4995
Fax: (415) 749-4741

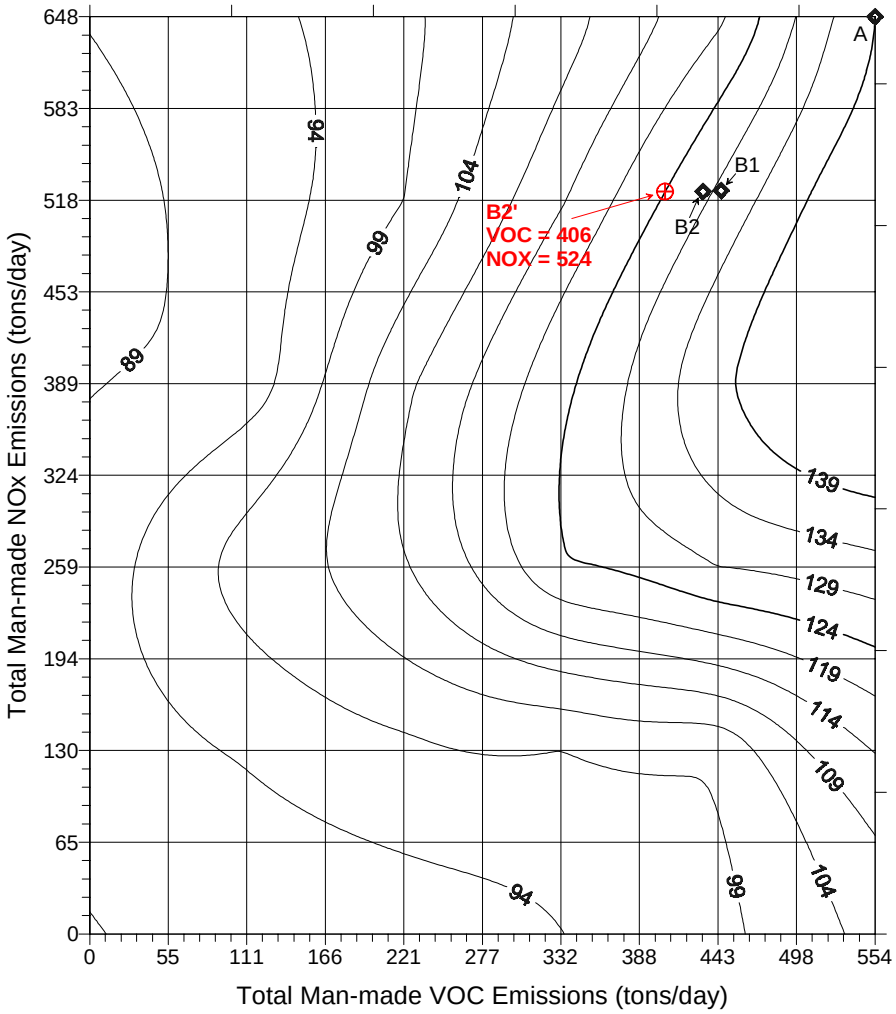
ABAG

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

METROPOLITAN TRANSPORTATION COMMISSION

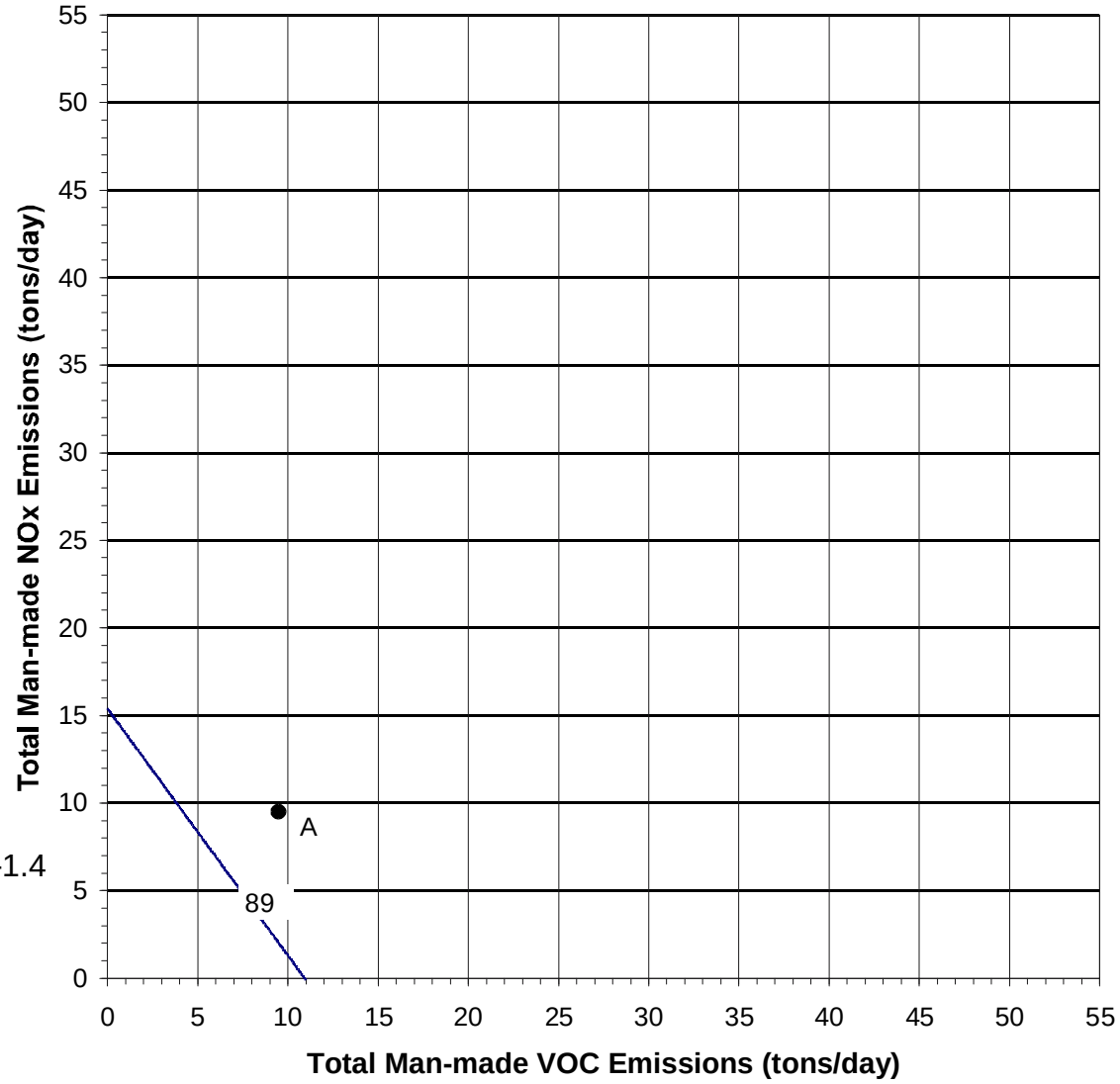
FIGURE 6

2006 LIVERMORE OZONE SENSITIVITY[10] USING 2000 BASE YEAR



[10] Isopleths of Livermore peak ozone concentrations (parts per billion) based on photochemical model future-year sensitivity simulations of a September 1989 ozone episode. The contours are scaled to reflect the 2000 design value of 139 ppb in Livermore. Point "A" represents the Bay Area's total anthropogenic emissions and ozone design value for 2000. Point "B1" represents the projected emissions for Year 2006 (considering growth and controls already submitted to EPA for the SIP). Point "B2" includes the effect of new control measures included in this Plan. The 124 ppb isopleth represents the design value needed for attainment of the national 1-hour standard. The VOC inventory level, represented by Point B2', is 406 tons/day, given projected NOx levels.

Figure 9-3
Reproduction of Figure 9-2: 2006 Livermore Ozone Sensitivity Using 2000 Base Year



slope = $\frac{-15.4}{11} = -1.4$

TABLE 9-1: EMISSIONS INVENTORY FOR COLUSA COUNTY

UNITS: TONS PER DAY

YEAR	AREA	SRC_TYPE	CATEGORY	SUBCATEGORY	TOG	ROG	NOX
2000	COLUSA COUNTY	STATIONARY	FUEL COMBUSTION	ELECTRIC UTILITIES	0	0	0.41
2000	COLUSA COUNTY	STATIONARY	FUEL COMBUSTION	COGENERATION	0	0	0
2000	COLUSA COUNTY	STATIONARY	FUEL COMBUSTION	OIL AND GAS PRODUCTION (COMBUSTION)	0.68	0.29	1.7
2000	COLUSA COUNTY	STATIONARY	FUEL COMBUSTION	PETROLEUM REFINING (COMBUSTION)	0	0	0
2000	COLUSA COUNTY	STATIONARY	FUEL COMBUSTION	MANUFACTURING AND INDUSTRIAL	0	0	0.02
2000	COLUSA COUNTY	STATIONARY	FUEL COMBUSTION	FOOD AND AGRICULTURAL PROCESSING	0.02	0.01	0.07
2000	COLUSA COUNTY	STATIONARY	FUEL COMBUSTION	SERVICE AND COMMERCIAL	0.06	0.01	1.58
2000	COLUSA COUNTY	STATIONARY	FUEL COMBUSTION	OTHER (FUEL COMBUSTION)	0	0	0
2000	COLUSA COUNTY	STATIONARY	WASTE DISPOSAL	SEWAGE TREATMENT	0	0	0
2000	COLUSA COUNTY	STATIONARY	WASTE DISPOSAL	LANDFILLS	0	0	0
2000	COLUSA COUNTY	STATIONARY	WASTE DISPOSAL	INCINERATORS	0	0	0
2000	COLUSA COUNTY	STATIONARY	WASTE DISPOSAL	SOIL REMEDIATION	0	0	0
2000	COLUSA COUNTY	STATIONARY	WASTE DISPOSAL	OTHER (WASTE DISPOSAL)	0	0	0
2000	COLUSA COUNTY	STATIONARY	CLEANING AND SURFACE COATINGS	LAUNDERING	0.03	0	0
2000	COLUSA COUNTY	STATIONARY	CLEANING AND SURFACE COATINGS	DEGREASING	0.05	0.05	0
2000	COLUSA COUNTY	STATIONARY	CLEANING AND SURFACE COATINGS	COATINGS AND RELATED PROCESS SOLVENTS	0.32	0.28	0
2000	COLUSA COUNTY	STATIONARY	CLEANING AND SURFACE COATINGS	PRINTING	0	0	0
2000	COLUSA COUNTY	STATIONARY	CLEANING AND SURFACE COATINGS	ADHESIVES AND SEALANTS	0.01	0.01	0
2000	COLUSA COUNTY	STATIONARY	CLEANING AND SURFACE COATINGS	OTHER (CLEANING AND SURFACE COATINGS)	0	0	0
2000	COLUSA COUNTY	STATIONARY	PETROLEUM PRODUCTION AND MARKETING	OIL AND GAS PRODUCTION	2.69	0.78	0
2000	COLUSA COUNTY	STATIONARY	PETROLEUM PRODUCTION AND MARKETING	PETROLEUM REFINING	0	0	0
2000	COLUSA COUNTY	STATIONARY	PETROLEUM PRODUCTION AND MARKETING	PETROLEUM MARKETING	0.28	0.28	0
2000	COLUSA COUNTY	STATIONARY	PETROLEUM PRODUCTION AND MARKETING	OTHER (PETROLEUM PRODUCTION AND MARKETING)	0	0	0
2000	COLUSA COUNTY	STATIONARY	INDUSTRIAL PROCESSES	CHEMICAL	0	0	0
2000	COLUSA COUNTY	STATIONARY	INDUSTRIAL PROCESSES	FOOD AND AGRICULTURE	0.41	0.41	0
2000	COLUSA COUNTY	STATIONARY	INDUSTRIAL PROCESSES	MINERAL PROCESSES	0	0	0
2000	COLUSA COUNTY	STATIONARY	INDUSTRIAL PROCESSES	METAL PROCESSES	0	0	0
2000	COLUSA COUNTY	STATIONARY	INDUSTRIAL PROCESSES	WOOD AND PAPER	0	0	0
2000	COLUSA COUNTY	STATIONARY	INDUSTRIAL PROCESSES	GLASS AND RELATED PRODUCTS	0	0	0
2000	COLUSA COUNTY	STATIONARY	INDUSTRIAL PROCESSES	ELECTRONICS	0	0	0
2000	COLUSA COUNTY	STATIONARY	INDUSTRIAL PROCESSES	OTHER (INDUSTRIAL PROCESSES)	0.01	0	0.25
2000	COLUSA COUNTY	AREA-WIDE	SOLVENT EVAPORATION	CONSUMER PRODUCTS	0.19	0.16	0
2000	COLUSA COUNTY	AREA-WIDE	SOLVENT EVAPORATION	ARCHITECTURAL COATINGS AND RELATED PROCESS SOLVENTS	0.07	0.07	0
2000	COLUSA COUNTY	AREA-WIDE	SOLVENT EVAPORATION	PESTICIDES/FERTILIZERS	1.02	1.02	0
2000	COLUSA COUNTY	AREA-WIDE	SOLVENT EVAPORATION	ASPHALT PAVING / ROOFING	0.61	0.61	0
2000	COLUSA COUNTY	AREA-WIDE	SOLVENT EVAPORATION	REFRIGERANTS	0	0	0
2000	COLUSA COUNTY	AREA-WIDE	SOLVENT EVAPORATION	OTHER (SOLVENT EVAPORATION)	0	0	0
2000	COLUSA COUNTY	AREA-WIDE	MISCELLANEOUS PROCESSES	RESIDENTIAL FUEL COMBUSTION	0.19	0.08	0.05
2000	COLUSA COUNTY	AREA-WIDE	MISCELLANEOUS PROCESSES	FARMING OPERATIONS	0	0	0
2000	COLUSA COUNTY	AREA-WIDE	MISCELLANEOUS PROCESSES	CONSTRUCTION AND DEMOLITION	0	0	0
2000	COLUSA COUNTY	AREA-WIDE	MISCELLANEOUS PROCESSES	PAVED ROAD DUST	0	0	0
2000	COLUSA COUNTY	AREA-WIDE	MISCELLANEOUS PROCESSES	UNPAVED ROAD DUST	0	0	0
2000	COLUSA COUNTY	AREA-WIDE	MISCELLANEOUS PROCESSES	FUGITIVE WINDBLOWN DUST	0	0	0
2000	COLUSA COUNTY	AREA-WIDE	MISCELLANEOUS PROCESSES	FIRES	0	0	0
2000	COLUSA COUNTY	AREA-WIDE	MISCELLANEOUS PROCESSES	WASTE BURNING AND DISPOSAL	5.06	2.87	0.02
2000	COLUSA COUNTY	AREA-WIDE	MISCELLANEOUS PROCESSES	UTILITY EQUIPMENT	0	0	0
2000	COLUSA COUNTY	AREA-WIDE	MISCELLANEOUS PROCESSES	COOKING	0	0	0
2000	COLUSA COUNTY	AREA-WIDE	MISCELLANEOUS PROCESSES	OTHER (MISCELLANEOUS PROCESSES)	0	0	0
2000	COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	LIGHT DUTY PASSENGER (LDA)	0.54	0.49	0.32
2000	COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	LIGHT AND MEDIUM DUTY TRUCKS	0	0	0

2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	LIGHT DUTY TRUCKS - 1 (LDT1)		0.25	0.23	0.15
2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	LIGHT DUTY TRUCKS - 2 (LDT2)		0.16	0.15	0.19
2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	MEDIUM DUTY TRUCKS (MDV)		0.25	0.23	0.24
2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	HEAVY DUTY GAS TRUCKS (ALL)		0	0	0
2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)		0.16	0.15	0.09
2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)		0.01	0.01	0.01
2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)		0.31	0.29	0.14
2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	HEAVY HEAVY DUTY GAS TRUCKS (HHDV)		0.08	0.07	0.03
2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	HEAVY DUTY DIESEL TRUCKS (ALL)		0	0	0
2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)		0	0	0.01
2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)		0	0	0.02
2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)		0.01	0.01	0.15
2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)		0.07	0.06	1
2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	MOTORCYCLES (MCY)		0.01	0.01	0
2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	HEAVY DUTY DIESEL URBAN BUSES (UB)		0	0	0.01
2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	HEAVY DUTY GAS URBAN BUSES (UB)		0.01	0.01	0.01
2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	SCHOOL BUSES (SB)		0.01	0.01	0.03
2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	MOTOR HOMES (MH)		0.01	0.01	0.01
2000 COLUSA COUNTY	MOBILE	ON-ROAD MOTOR VEHICLES	OTHER (ON-ROAD MOTOR VEHICLES)		0	0	0
2000 COLUSA COUNTY	MOBILE	OTHER MOBILE SOURCES	AIRCRAFT		0	0	0
2000 COLUSA COUNTY	MOBILE	OTHER MOBILE SOURCES	TRAINS		0	0	0.14
2000 COLUSA COUNTY	MOBILE	OTHER MOBILE SOURCES	SHIPS AND COMMERCIAL BOATS		0	0	0
2000 COLUSA COUNTY	MOBILE	OTHER MOBILE SOURCES	RECREATIONAL BOATS		0.34	0.31	0.01
2000 COLUSA COUNTY	MOBILE	OTHER MOBILE SOURCES	OFF-ROAD RECREATIONAL VEHICLES		0.03	0.02	0.01
2000 COLUSA COUNTY	MOBILE	OTHER MOBILE SOURCES	OFF-ROAD EQUIPMENT		0.09	0.08	0.56
2000 COLUSA COUNTY	MOBILE	OTHER MOBILE SOURCES	FARM EQUIPMENT		0.34	0.3	2.22
2000 COLUSA COUNTY	MOBILE	OTHER MOBILE SOURCES	FUEL STORAGE AND HANDLING		0	0	0
2000 COLUSA COUNTY	MOBILE	OTHER MOBILE SOURCES	OTHER (OTHER MOBILE SOURCES)		0	0	0
2000 COLUSA COUNTY	NATURAL (NON-ANTHROPOGENIC)	NATURAL SOURCES	GEOGENIC SOURCES		0.24	0.05	0
2000 COLUSA COUNTY	NATURAL (NON-ANTHROPOGENIC)	NATURAL SOURCES	WILDFIRES		0.09	0.05	0.06
2000 COLUSA COUNTY	NATURAL (NON-ANTHROPOGENIC)	NATURAL SOURCES	WINDBLOWN DUST		0	0	0
2000 COLUSA COUNTY	NATURAL (NON-ANTHROPOGENIC)	NATURAL SOURCES	OTHER (NATURAL SOURCES)		0	0	0
				Total (tons/day):	14.7	9.47	9.51

BACKGROUND [126 THROUGH 133]

It is staff's understanding that the applicant now intends to use PM_{10} ERCs created through the cessation of agricultural burning, through road paving, or from existing ERCs available from an industrial source in Glenn County. However, no agreements for any of these potential ERC sources have been provided. No schedules for the creation of the ERCs have been provided. Complete documentation to substantiate the quantity of emission reductions has not been provided. Additionally, the applicant has not provided information to justify the use of road paving as appropriate PM_{10} mitigation for a combustion source. Staff requires additional information to assess the proposed PM_{10} offset package.

DATA REQUEST

126. Please provide a final offset package indicating exactly which of the proposed potential offset sources will be used to offset PM_{10} emissions from the CPP.

RESPONSE

On December 7, 2001 Reliant docketed a description of the CPP's proposed offset package to the California Energy Commission which described, prioritized, and outlined a strategy for obtaining PM_{10} offsets. The details regarding this PM_{10} offset strategy were submitted to comply with the Committee's scheduling order. The scheduling order did not require option contracts as staff suggested. In its December 7, 2001 filing, Reliant explained how each of its potential offset sources would be used. These details are sufficient for CEC staff to determine whether each of the identified offset sources is sufficient to mitigate potentially significant impacts. As discussed at the latest Committee Hearing, these offset sources will be selected with option contracts in place prior to circulation of the Final Determination of Compliance (FDOC) by the Colusa County Air Pollution Control District. The Committee's schedule allows for the Preliminary Staff Assessment (PSA) to be issued prior to the FDOC being released.

In this description, Reliant articulated that ERCs created from the cessation of agricultural burning will be the primary source of offsets used for the CPP, and paving a portion of Lurline Road in Colusa County will be used to supplement any shortfall of PM_{10} credits not obtained through agricultural ERCs. Additionally, Reliant identified an industrial source in Glenn County, which has banked PM_{10} ERCs, as a potential third source, if required. Since Reliant submitted this information to the CEC more progress has been made on securing PM_{10} offsets. Reliant anticipates between 115 and 130 TPY of PM_{10} offsets to come from agricultural ERCs, with the remaining 10 to 25 TPY to come from paving a portion of Lurline Road. No ERCs from the industrial source in Glenn County are anticipated to be required given the success in securing offsets from the other two sources.

A list similar to what was submitted to the CEC on December 7, 2001 describing the proposed offset package for the CPP is provided as Attachment 126-1. The list has been updated to reflect progress made to date including a more refined list of growers with whom option contracts are being finalized. The list also identifies what crop is involved from each identified source. The industrial source from Glenn County has been removed because Reliant does not anticipate needing ERCs from this source to satisfy the PM_{10} offset requirements.

ATTACHMENT 126-1

RELIANT ENERGY
SUMMARY
Emission Reduction Credits

			Estimated ERC Purchased					Distance (m	Dist. Factor	Net ERCs Available By Qtr.				
Grower	Crop	Pollutan	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total/yr			1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total/yr
A	Rice	PM10	4,731	3,815	1,526	5,189	15,261	<20	1.2	3,943	3,179	1,272	4,324	12,718
B-1	Rice	PM10	5,497	4,433	1,773	6,082	17,785	<20	1.2	4,581	3,694	1,478	5,068	14,821
B-2	Rice	PM10	2,067	1,667	667	2,267	6,668	<20	1.2	1,723	1,389	556	1,889	5,557
C-1	Rice	PM10	564	455	182	619	1,820	<20	1.2	470	379	152	516	1,517
C-1	Wheat	PM10	-	211	369	6	586	<20	1.2	-	176	308	5	488
C-2	Rice	PM10	2,480	2,000	800	2,720	8,000	<20	1.2	2,067	1,667	667	2,267	6,667
C-2	Wheat	PM10	-	715	1,252	20	1,987	<20	1.2	-	596	1,043	17	1,656
C-3	Rice	PM10	5,072	4,091	1,636	5,563	16,362	<20	1.2	4,227	3,409	1,363	4,636	13,635
C-4	Rice	PM10	698	563	225	766	2,252	<20	1.2	582	469	188	638	1,877
D	Rice	PM10	1,503	1,212	485	1,648	4,848	<20	1.2	1,253	1,010	404	1,374	4,040
D	Safflowe	PM10	0	-	44	-	44	<20	1.2	0	-	36	-	37
D	Wheat	PM10	-	104	174	3		<20	1.2	-	87	145	2	234
E-1	Rice	PM10	3,509	2,830	1,132	3,848	11,319	<20	1.2	2,924	2,358	943	3,207	9,432
E-1	Safflowe	PM10	39	-	3,882	-	3,921	<20	1.2	33	-	3,235	-	3,267
E-1	Wheat	PM10	-	1,354	2,269	37	3,660	<20	1.2	-	1,128	1,891	31	3,050
E-2	Rice	PM10	2,151	1,735	694	2,359	6,938	<20	1.2	1,792	1,445	578	1,966	5,782
E-2	Safflowe	PM10	54	-	5,321	-	5,375	<20	1.2	45	-	4,434	-	4,479
E-2	Wheat	PM10	-	4,948	8,292	134	13,373	<20	1.2	-	4,124	6,910	111	11,145
E-3	Wheat	PM10	-	374	627	10	1,011	<20	1.2	-	312	523	8	843
E-4	Wheat	PM10	-	47	79	1	127	<20	1.2	-	39	66	1	106
F	Rice	PM10	3,724	3,003	1,201	4,084	12,012	<20	1.2	3,103	2,503	1,001	3,403	10,010
G-1	Rice	PM10	4,143	3,341	1,337	4,544	13,365	<20	1.2	3,453	2,784	1,114	3,787	11,138
G-1	Wheat	PM10	-	641	1,121	18	1,780	<20	1.2	-	534	934	15	1,483
G-2	Rice	PM10	1,618	1,305	522	1,775	5,220	<20	1.2	1,348	1,088	435	1,479	4,350
H-1	Rice	PM10	1,217	982	393	1,335	3,927	<20	1.2	1,014	818	328	1,113	3,273
H-2	Rice	PM10	1,911	1,541	616	2,096	6,164	<20	1.2	1,593	1,284	513	1,747	5,137
H-3	Rice	PM10	237	191	76	260	764	<20	1.2	198	159	63	217	637
H-4	Rice	PM10	712	574	230	781	2,297	<20	1.2	593	478	192	651	1,914
H-5	Rice	PM10	2,524	2,036	814	2,768	8,142	<20	1.2	2,103	1,697	678	2,307	6,785
H-6	Rice	PM10	1,940	1,564	626	2,127	6,257	<20	1.2	1,617	1,303	522	1,773	5,214
H-7	Rice	PM10	2,910	2,347	939	3,192	9,388	<20	1.2	2,425	1,956	783	2,660	7,823
H-8	Ind.	PM10	6,034	10,156	9,218	7,201	32,609	>50	2.0	3,017	5,078	4,609	3,601	16,305
I-1	Rice	PM10	10,169	8,200	3,280	11,153	32,802	<20	1.2	8,474	6,833	2,733	9,294	27,335
I-2	Rice	PM10	1,659	1,338	535	1,819	5,351	<20	1.2	1,383	1,115	446	1,516	4,459
I-3	Rice	PM10	1,024	825	330	1,123	3,302	<20	1.2	853	688	275	936	2,752
I-4	Rice	PM10	1,657	1,072	292	1,851	4,872	20 - 50	1.5	1,105	715	195	1,234	3,248
J-1	Rice	PM10	668	432	1,256	747	3,103	20 - 50	1.5	445	288	837	498	2,069
J-2	Rice	PM10	2,724	1,762	3,345	3,044	10,875	20 - 50	1.5	1,816	1,175	2,230	2,029	7,250
K	Rice	PM10	3,710	2,400	655	4,146	10,911	20 - 50	1.5	2,473	1,600	437	2,764	7,274
L	Rice	PM10	1,875	1,597	2,184	2,043	7,699	20 - 50	1.5	1,250	1,065	1,456	1,362	5,133
M-1	Rice	PM10	819	661	264	899	2,643	20 - 50	1.5	546	441	176	599	1,762
M-2	Rice	PM10	1,606	1,296	518	1,762	5,182	20 - 50	1.5	1,071	864	345	1,175	3,455
M-3	Rice	PM10	4,596	3,707	1,483	5,041	14,827	20 - 50	1.5	3,064	2,471	989	3,361	9,885
M-3	Safflowe	PM10	11	-	1,108	-	1,119	20 - 50	1.5	7	-	739	-	746
M-4	Rice	PM10	2,456	1,980	792	2,693	7,922	20 - 50	1.5	1,637	1,320	528	1,796	5,281
M-4	Safflowe	PM10	29	-	2,893	-	2,922	20 - 50	1.5	19	-	1,928	-	1,948
M-5	Rice	PM10	4,182	3,640	1,797	4,594	14,213	20 - 50	1.5	2,788	2,427	1,198	3,063	9,475
M-5	Wheat	PM10	-	267	448	7	722	20 - 50	1.5	-	178	298	5	481
M-6	Rice	PM10	131	106	42	144	424	20 - 50	1.5	88	71	28	96	283
M-6	Safflowe	PM10	33	-	3,309	-	3,342	20 - 50	1.5	22	-	2,206	-	2,228
M-7	Rice	PM10	300	242	97	328	966	20 - 50	1.5	200	161	64	219	644
M-7	Safflowe	PM10	10	-	964	-	974	20 - 50	1.5	6	-	643	-	649
Total lbs.		PM10	92,995	87,760	74,112	102,848	357,432			**71,349**	**66,554**	**55,113**	**78,756**	**271,772**
Total tons		PM10	46.4973	43.8798	37.0559	51.4239	178.7162			**35.6747**	**33.2770**	**27.5564**	**39.3781**	**135.8862**

ATTACHMENT 126-1

RELIANT ENERGY
SUMMARY
Emission Reduction Credits

			Estimated ERC Purchased					Distance (m	Dist. Factor	Net ERCs Available By Qtr.				
Grower	Crop	Pollutan	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total/yr			1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total/yr
A	Rice	SOx	826	666	266	906	2,664	<20	1.2	688	555	222	755	2,220
B-1	Rice	SOx	960	774	310	1,053	3,097	<20	1.2	800	645	258	878	2,581
B-2	Rice	SOx	361	291	116	396	1,164	<20	1.2	301	243	97	330	970
C-1	Rice	SOx	99	79	32	108	318	<20	1.2	83	66	27	90	265
C-1	Wheat	SOx	-	18	31	-	49	<20	1.2	-	15	26	-	41
C-2	Rice	SOx	433	349	140	475	1,397	<20	1.2	361	291	117	396	1,164
C-2	Wheat	SOx	-	61	106	2	169	<20	1.2	-	51	88	2	141
C-3	Rice	SOx	886	714	286	971	2,857	<20	1.2	738	595	238	809	2,381
C-4	Rice	SOx	122	98	39	134	393	<20	1.2	102	82	33	112	328
D	Rice	SOx	262	212	85	288	847	<20	1.2	218	177	71	240	706
D	Safflowe	SOx	-	-	2	-	2	<20	1.2	-	-	1	-	1
D	Wheat	SOx	-	9	15	0	24	<20	1.2	-	7	12	0	20
E-1	Rice	SOx	613	494	198	672	1,976	<20	1.2	511	412	165	560	1,647
E-1	Safflowe	SOx	1	-	132	-	133	<20	1.2	1	-	110	-	111
E-1	Wheat	SOx	-	115	193	3	311	<20	1.2	-	96	161	3	259
E-2	Rice	SOx	376	303	121	412	1,211	<20	1.2	313	252	101	343	1,009
E-2	Safflowe	SOx	2	-	180	-	182	<20	1.2	2	-	150	-	152
E-2	Wheat	SOx	-	420	704	11	1,136	<20	1.2	-	350	587	10	946
E-3	Wheat	SOx	-	32	53	1	86	<20	1.2	-	27	44	1	72
E-4	Wheat	SOx	-	47	79	1	127	<20	1.2	-	39	66	1	106
F	Rice	SOx	650	524	210	713	2,097	<20	1.2	542	437	175	594	1,748
G-1	Rice	SOx	723	583	233	793	2,332	<20	1.2	603	486	194	661	1,943
G-1	Wheat	SOx	-	54	95	2	151	<20	1.2	-	45	79	2	126
G-2	Rice	SOx	283	228	91	310	912	<20	1.2	236	190	76	258	760
H-1	Rice	SOx	213	171	69	233	686	<20	1.2	178	143	58	194	572
H-2	Rice	SOx	334	269	108	366	1,077	<20	1.2	278	224	90	305	898
H-3	Rice	SOx	41	33	13	45	132	<20	1.2	34	28	11	38	110
H-4	Rice	SOx	124	100	40	136	400	<20	1.2	103	83	33	113	333
H-5	Rice	SOx	441	355	142	483	1,421	<20	1.2	368	296	118	403	1,184
H-6	Rice	SOx	339	273	109	371	1,092	<20	1.2	283	228	91	309	910
H-7	Rice	SOx	508	410	164	557	1,639	<20	1.2	423	342	137	464	1,366
H-8		SOx	166	279	254	198	897	>50	2.0	83	140	127	99	449
I-1	Rice	SOx	1,775	1,432	573	1,947	5,727	<20	1.2	1,479	1,193	478	1,623	4,773
I-2	Rice	SOx	290	234	93	318	935	<20	1.2	242	195	78	265	779
I-3	Rice	SOx	179	144	58	196	577	<20	1.2	149	120	48	163	481
I-4	Rice	SOx	289	187	51	323	850	20 - 50	1.5	193	125	34	215	567
J-1	Rice	SOx	137	89	227	153	606	20 - 50	1.5	91	59	151	102	404
J-2	Rice	SOx	560	362	610	626	2,158	20 - 50	1.5	373	241	407	417	1,439
K	Rice	SOx	648	419	114	724	1,905	20 - 50	1.5	432	279	76	483	1,270
L	Rice	SOx	325	270	167	357	1,119	20 - 50	1.5	217	180	111	238	746
M-1	Rice	SOx	143	115	46	157	461	20 - 50	1.5	95	77	31	105	307
M-2	Rice	SOx	281	226	91	308	906	20 - 50	1.5	187	151	61	205	604
M-2	Rice	SOx	803	647	259	880	2,589	20 - 50	1.5	535	432	173	587	1,726
M-3	Safflowe	SOx	0	-	38	-	38	20 - 50	1.5	0	-	25	-	25
M-4	Rice	SOx	429	346	138	470	1,383	20 - 50	1.5	286	231	92	314	922
M-4	Safflowe	SOx	1	-	98	-	99	20 - 50	1.5	1	-	65	-	66
M-5	Rice	SOx	730	589	235	801	2,355	20 - 50	1.5	487	393	157	534	1,570
M-5	Wheat	SOx	-	23	38	1	61	20 - 50	1.5	-	15	25	0	41
M-6	Rice	SOx	23	19	7	25	74	20 - 50	1.5	15	12	5	17	49
M-6	Safflowe	SOx	1	-	131	-	132	20 - 50	1.5	1	-	87	-	88
M-7	Rice	SOx	52	42	17	57	169	20 - 50	1.5	35	28	11	38	112
M-7	Safflowe	SOx	0	-	36	-	36	20 - 50	1.5	0	-	24	-	24
Total lbs.		SOx	15,429	13,104	7,641	16,984	53,159			**12,065**	**10,272**	**5,899**	**13,274**	**41,510**
Total tons		SOx	7.71	6.55	3.82	8.49	26.5793			**6.03**	**5.14**	**2.95**	**6.64**	**20.7548**

ATTACHMENT 126-1

RELIANT ENERGY
SUMMARY
Emission Reduction Credits

			Estimated ERC Purchased					Distance (m	Dist. Factor		Net ERCs Available By Qtr.			
Grower	Crop	Pollutan	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total/yr				1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	Total/yr
B-1	Rice	VOC	-	3,307	1,323	-	4,630	<20	1.2			2,756	1,103		3,858
B-2	Rice	VOC	-	1,244	498	-	1,742	<20	1.2			1,037	415		1,452
C-1	Rice	VOC	-	340	136	-	476	<20	1.2			283	113		397
C-1	Wheat	VOC	-	151	264	-	415	<20	1.2			126	220		346
C-2	Rice	VOC	-	1,492	597	-	2,089	<20	1.2			1,243	498		1,741
C-2	Wheat	VOC	-	513	897	-	1,410	<20	1.2			428	748		1,175
C-3	Rice	VOC	-	3,052	1,221	-	4,273	<20	1.2			2,543	1,018		3,561
C-4	Rice	VOC	-	420	168	-	588	<20	1.2			350	140		490
E-1	Rice	VOC	-	2,111	844	-	2,956	<20	1.2			1,759	704		2,463
E-1	Safflowe	VOC	-	-	3,246	-	3,246	<20	1.2			-	2,705		2,705
E-1	Wheat	VOC	-	971	1,627		2,598	<20	1.2			809	1,356		2,165
E-2	Rice	VOC	-	1,294	518	-	1,812	<20	1.2			1,078	431		1,510
E-2	Safflowe	VOC	-	-	4,449	-	4,449	<20	1.2			-	3,708		3,708
E-2	Wheat	VOC	-	3,548	5,945	-	9,493	<20	1.2			2,956	4,954		7,911
E-3	Wheat	VOC	-	268	449	-	717	<20	1.2			223	374		598
E-4	Wheat	VOC	-	397	664	-	1,061	<20	1.2			331	553		884
Total lbs.		VOC		19,108	22,846		41,953					**15,923**	**19,038**		**34,961**
Total tons		VOC		9.5539	11.4229		20.9767					**7.9615**	**9.5190**		**17.4806**

DATA REQUEST

127. Please provide documentation substantiating that the agricultural burning ERCs will be available to the CPP. Please identify the anticipated schedule of when all of these ERCs will be banked by the local air district.

RESPONSE

Reliant is currently entering into contracts with farmers in the vicinity of the proposed project site to acquire Emission Reduction Credits (ERCs) through the cessation of agricultural burning. Under the terms of these contracts, growers have 30 days after signing an agreement with Reliant to submit all necessary paperwork to begin the banking process with the Colusa County Air Pollution Control District (CCAPCD). According to the CCAPCD, once they receive a complete application it will take approximately 2 months to process the application and certify the ERCs. Reliant anticipates having all contracts signed by the end of January 2002.

Below is an excerpt from the contracts being entered into between Reliant and the growers specifically discussing the certification timeline.

> 3.2 Certification of ERCs by District. Within thirty (30) days after the date of this Agreement, set forth above, Seller shall file an application with the District and deliver all other materials required by the District and other applicable laws, if any, to create ERCs in the amount set forth in Section 3.1, above, that will be "real, permanent, quantifiable, and enforceable" within the meaning of applicable federal and state air quality laws and regulations and District rules, and will not be subject to reduction at any time on account of any act or failure to act by Seller or any other person or entity from and after the time of transfer of the ERCs pursuant to the terms of this Agreement. The final quantity of ERCs that are certified and banked by the District and transferred by Seller to Buyer shall be the "Final Quantity" of ERCs for purposes of this Agreement.

Reliant will provide copies of each agreement to the California Energy Commission once executed.

DATA REQUEST

128. Please revise the provided calculations regarding the agricultural burning ERCs, clearly indicating what crop is involved from each identified source.

RESPONSE

Please refer to the list, Attachment 126-1, provided in Data Request 126.

DATA REQUEST

129. Please provide written documentation regarding the applicant's ability or right to pave Lurline Road (e.g., a letter of approval from the County public works or roads department), and provide an anticipated schedule for completing the road paving.

RESPONSE

A letter from the Colusa County Department of Public Works dated December 20, 2001 and docketed by Reliant with the California Energy Commission on December 21, 2001 is provided as Attachment 129-1. This letter confirms Reliant's ability to pave Lurline Road for the purpose of creating ERCs to be used by the CPP, subject to Colusa County Board of Supervisors' approval.

The repaving effort is expected to have a duration of approximately 30 days, as discussed in the response to Data Request 130. The timing of the effort has not been determined but it is anticipated to be completed within the first year of CPP construction.

ATTACHMENT 129-1

JON WRYSINSKI, INTERIM DIRECTOR

COUNTY OF COLUSA

DEPARTMENT OF PUBLIC WORKS

ROAD COMMISSIONER-SURVEYOR-ENGINEER
1215 MARKET ST., COLUSA, CALIFORNIA 95932
TELEPHONE (530) 458-0466 FAX (530) 458-2035

December 20, 2001

Kristy Chew
Project Manager
Systems Assessment & Facility Siting Division
California Energy Commission
1516 Ninth Street, MS-15
Sacramento, CA 95814

Re: Colusa County Power Plant ("Plant") Application No. 01-AFC-10 filed by Reliant Energy Colusa County, LLC ("Reliant") at the California Energy Commission ("CEC")

Dear Ms. Chew,

You have requested confirmation of certain matters pertaining to the paving of roads in Colusa County, California. Please note that the County of Colusa ("County") and Reliant are currently discussing paving all or a portion of Lurline Road in order to create emission reduction credits for use in connection with the certification of the Plant. While any contract the County enters into with Reliant is subject to approval by the Colusa County Board of Supervisors, the Department of Public Works is supportive of Reliant's proposal and is actively working with Reliant to finalize a road paving agreement.

Sincerely,

Jon S. Wrysinski
Interim Director Department of
Public Works, Colusa County

DATA REQUEST

130. Please provide an estimate of the construction emissions (hourly, monthly, and annual) that would occur during the paving of Lurline Road.

RESPONSE

To be submitted under separate cover. See document: “Supplemental Info.pdf.”

DATA REQUEST

131. Please provide copies of the traffic surveys, silt content tests, and other data sources used to calculate the emission reductions that will result from the paving Lurline Road.

RESPONSE

The sampling and analytical program along Lurline Avenue was conducted in accordance with the proposed protocol, Attachment 131-1, which was approved by Mr. Les Fife of CCAPCD. On November 7, 2001 samples were collected by a senior URS engineering geologist at the stations indicated on Figures 131-1 and 131-2 (Stations 1 through 5). This process was observed at the initial location by a representative of the CCAPCD. Six discrete samples were obtained at each sampling station as indicated below:

- South traffic lane (S) – one for moisture content, one for particle size analysis;
- Centerline of roadway (C) – one for moisture content, one for particle size analysis; and
- North traffic lane (N) – one for moisture content, one for particle size analysis.

Samples were obtained manually from a depth of 0 to 3 inches using a pick and a trowel, and transported in sealed plastic bags to Signet Testing Labs, Inc. (Signet) in Hayward, California that afternoon. The six samples from each station were composited in the laboratory to create one sample for moisture content determination and one sample for particle size analysis; composite samples were designated I-SCN through 5-SCN. Analyses were performed by Signet as follows:

- Moisture content by ASTM D2216
- Particle size distribution by ASTM D422 (which includes a hydrometer analysis)

Moisture content test results are presented on Table 131-1. The results of the particle size analyses are presented graphically on Figures 131-3 through 131-7.

Traffic count data sheets, Attachments 131-2 through 131-5, were provided by the County of Colusa for four locations, identified on Figures 131-1 and 131-2 as 68-2 through 68-5.

Initial and final calculations of potential PM_{10} offsets were provided to the CEC via e-mail on November 20, 2001 and are resubmitted here as Attachments 131-6 and 131-7, respectively. CCAPCD has indicated verbal acceptance of the approach and the amount of PM_{10} offset that the approach calculates.

Table 131-1
Moisture Content Test Results

Client : URS/Dames & Moore Project : Reliant Energy, Colusa Power Plant Job No : 43-00066841.40

	Boring #	1 SCN	2 SCN	3 SCN	4 SCN	5 SCN			
	Sample #	M	M	M	M	M			
	Depth (ft.)	0-3"	0-3"	0-3"	0-3"	0-3"			
	Soil type: (visual)	Brown silty sand with gravel	Brown silty sand with gravel	Brown silty sand with gravel	Olive brown silty sand with gravel	Light brown silty sand with gravel			
1.	Date tested:	11/8/2001	11/8/2001	11/8/2001	11/8/2001	11/8/2001			
2.	Tested by:	MS	MS	MS	MS	MS			
3.	Specimen height (in.)								
4.	Wt. of specimen + tare (gm)								
5.	Tare wt. (gm)								
6.	Diameter (in.)								
7.	Wet wt. of soil + dish wt. (gm)	511.80	617.70	654.90	872.60	596.60			
8.	Dry wt. of soil + dish wt. (gm)	494.70	604.90	642.80	856.80	589.90			
9.	Wt. of dish (gm)	161.92	165.15	166.50	166.45	167.43			
10.	Dish ID	EG-2	LW-4	LW-2	FJR-9	FJR-5			
	Wet Density (pcf)								
	Dry Density (pcf)								
	Moisture Content (%)	5.1	2.9	2.5	2.3	1.6			
	Gs (Assumed)	2.70	2.70	2.70	2.70	2.70			
	Void Ratio								
	Saturation (%)								
	Additional data:								
	Wt. of dry soil + dish before washing (gm)								
	Wt. of dry soil + dish after washing (gm)								
	% Passing # 200 sieve								
	USCS symbol								

Source:
USGS Topographic Maps, 7.5 Minute Series:
Colusa, California, 1973

See Figure 131-2
for Continuation

68-5

LEGEND

2 Denotes Location of Sampling Station

68-5 Denotes Location of Traffic Count

0 2000 4000
Scale in Feet
1:24,000

N

SAMPLING STATION AND TRAFFIC COUNT LOCATIONS, COLUSA QUADRANGLE

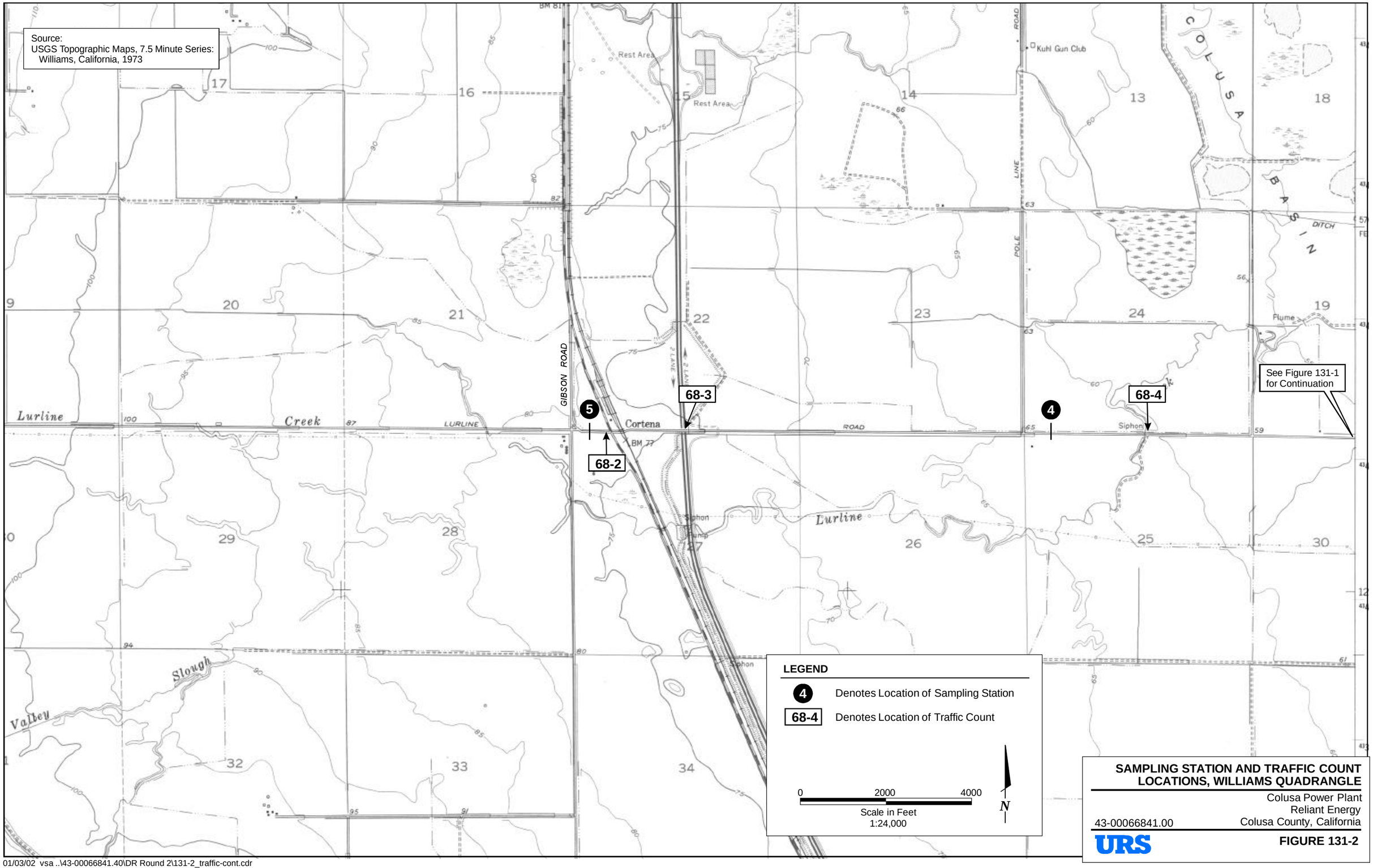
Colusa Power Plant
Reliant Energy
43-00066841.00 Colusa County, California

URS

FIGURE 131-1

01/03/02 vsa ..\43-00066841.40\DR_Round 2\131-1_traffic.cdr

Source:
USGS Topographic Maps, 7.5 Minute Series:
Williams, California, 1973



LEGEND

4 Denotes Location of Sampling Station

68-4 Denotes Location of Traffic Count

0 2000 4000
Scale in Feet
1:24,000

N

SAMPLING STATION AND TRAFFIC COUNT LOCATIONS, WILLIAMS QUADRANGLE

Colusa Power Plant
Reliant Energy
Colusa County, California

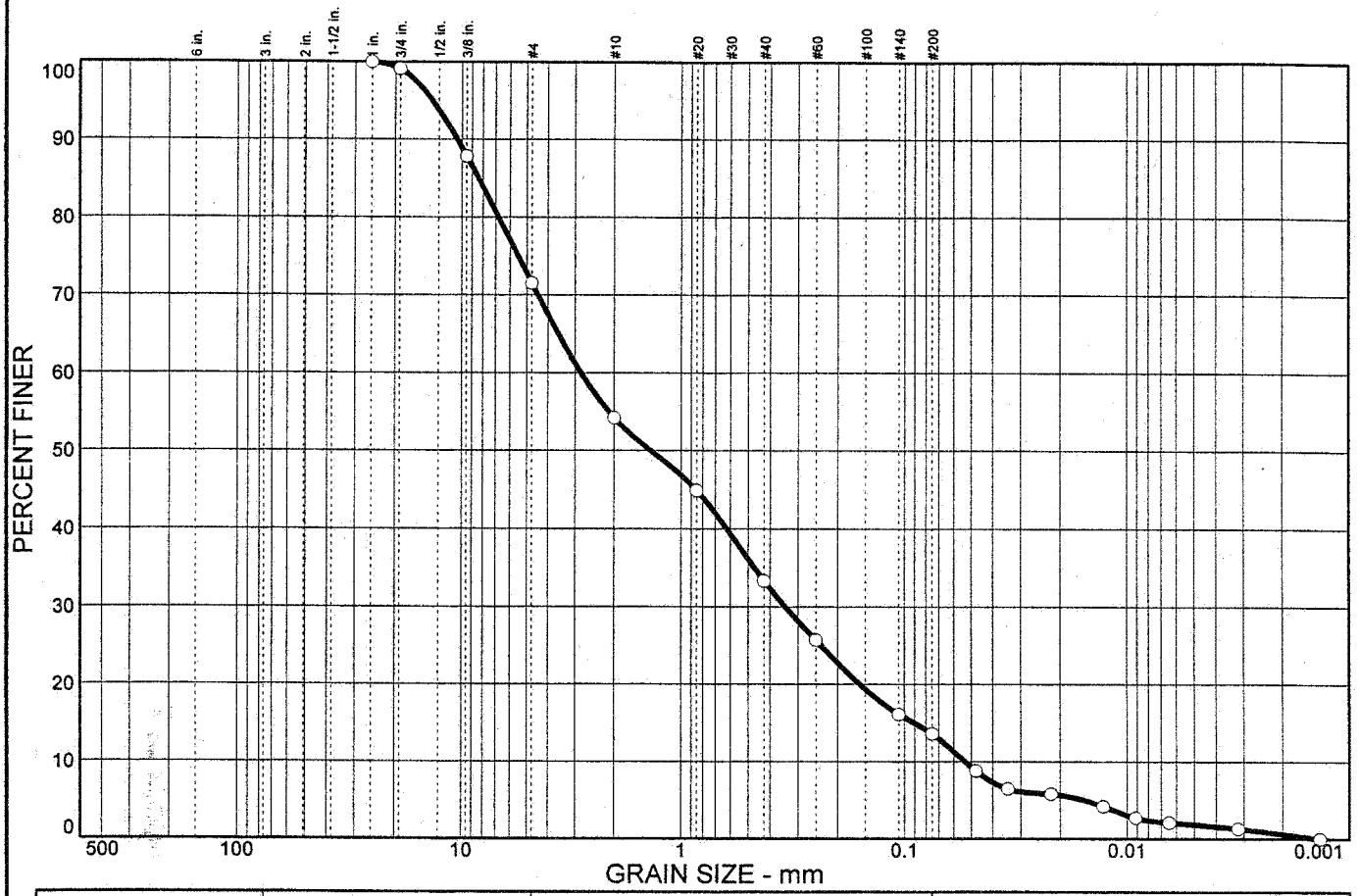
43-00066841.00

URS

FIGURE 131-2

01/03/02 vsa ..\43-00066841.40\DR Round 2\131-2_traffic-cont.cdr

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.9	27.6	17.3	20.9	19.7	11.8	1.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 in.	100.0		
3/4 in.	99.1		
3/8 in.	87.8		
#4	71.5		
#10	54.2		
#20	44.9		
#40	33.3		
#60	25.7		
#140	16.1		
#200	13.6		

* (no specification provided)

Soil Description

Brown Silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 8.41 D_{60}= 2.82 D_{50}= 1.37
D_{30}= 0.343 D_{15}= 0.0904 D_{10}= 0.0535
C_u= 52.68 C_c= 0.78

Classification

USCS= SM AASHTO=

Remarks

Sample No.: **Source of Sample:** 1-SCN **Date:**
Location: **Elev./Depth:** 0.3"

SIGNET TESTING LABS, INC.

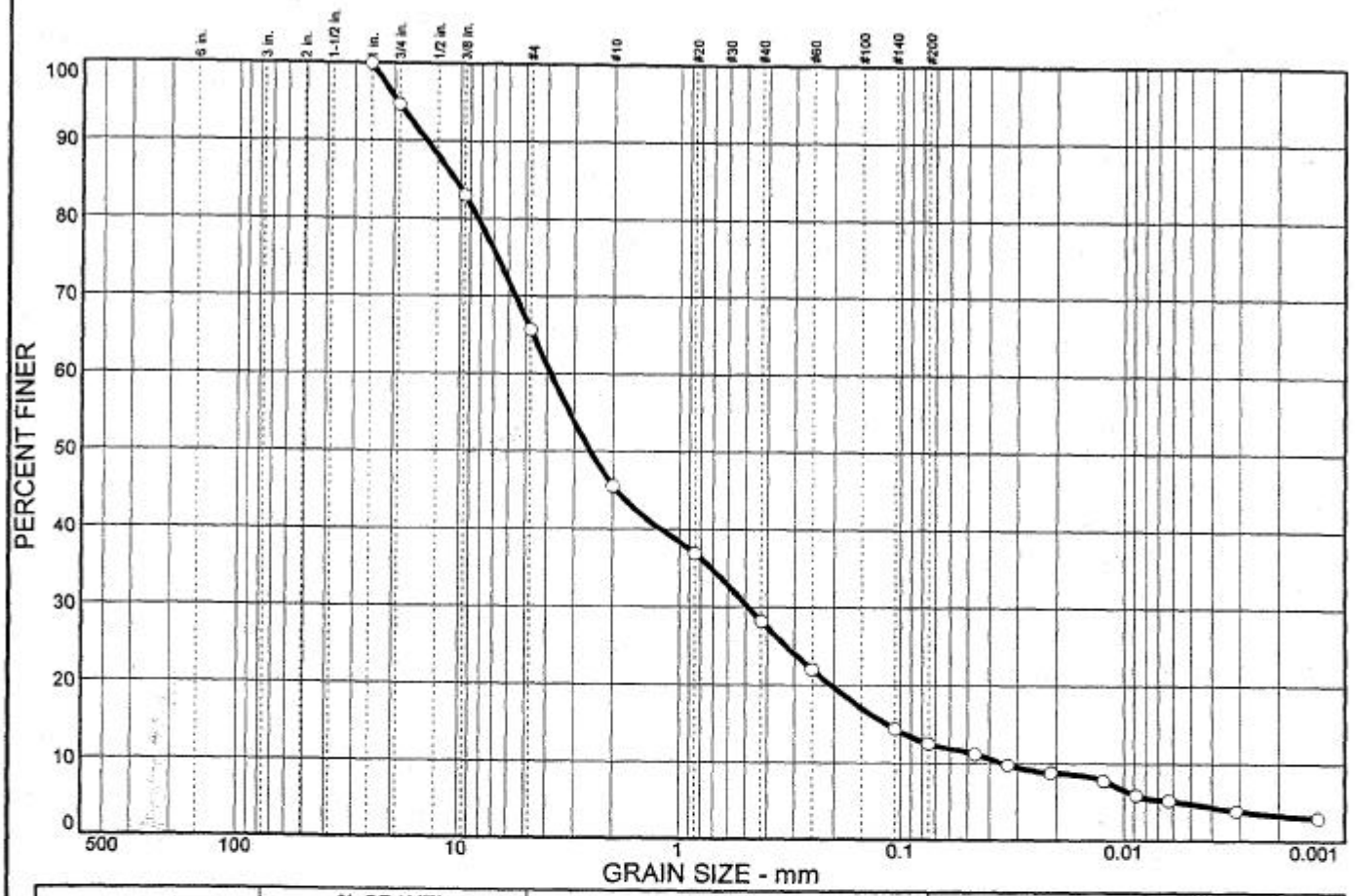
Client: URS/Dames & Moore
Project: Reliant Energy
Colusa Power Plant
Project No: 43-00066841.40

PARTICLE SIZE DISTRIBUTION REPORT - SAMPLE 1-SCN

URS **FIGURE 131-3**

01/03/02 vsa ..\43-00066841.40\DR Round 2\131-3_1scn.cdr

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	5.3	29.0	20.1	17.4	15.7	7.7	4.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 in.	100.0		
3/4 in.	94.7		
3/8 in.	83.0		
#4	65.7		
#10	45.6		
#20	36.9		
#40	28.2		
#60	22.0		
#140	14.4		
#200	12.5		

* (no specification provided)

Soil Description

Brown Silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 10.6 D_{60}= 3.84 D_{50}= 2.54
D_{30}= 0.487 D_{15}= 0.115 D_{10}= 0.0348
C_u= 110.30 C_c= 1.78

Classification

USCS= SM AASHTO=

Remarks

Sample No.: **Source of Sample:** 2-SCN **Date:**
Location: **Elev./Depth:** 0.3"

SIGNET TESTING LABS, INC.

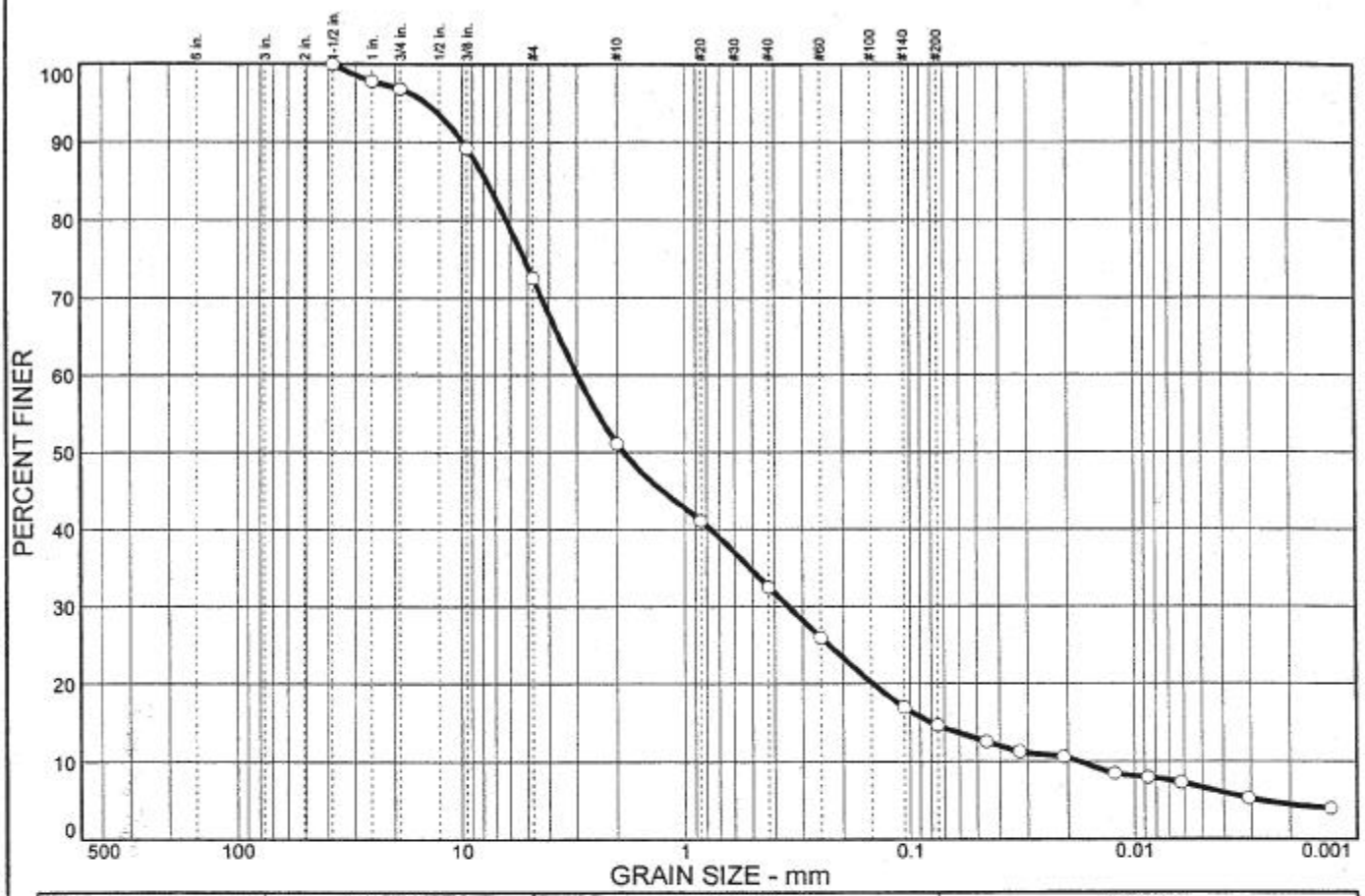
Client: URS/Dames & Moore
Project: Reliant Energy
Colusa Power Plant
Project No: 43-00066841.40

PARTICLE SIZE DISTRIBUTION REPORT - SAMPLE 2-SCN

URS **FIGURE 131-4**

01/03/02 vsa ..\43-00066841.40\DR Round 2\131-4_2SCN.cdr

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	3.2	24.3	21.4	18.6	17.8	8.0	6.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5 in.	100.0		
1 in.	97.8		
3/4 in.	96.8		
3/8 in.	89.2		
#4	72.5		
#10	51.1		
#20	41.1		
#40	32.5		
#60	26.0		
#140	17.0		
#200	14.7		

* (no specification provided)

Soil Description

Brown Silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 7.75 D_{60}= 2.99 D_{50}= 1.87
D_{30}= 0.348 D_{15}= 0.0792 D_{10}= 0.0176
C_u= 169.74 C_c= 2.30

Classification

USCS= SM AASHTO=

Remarks

Sample No.: Source of Sample: 3-SCN Date:
Location: Elev./Depth: 0.3"

SIGNET TESTING LABS, INC.

Client: URS/Dames & Moore
Project: Reliant Energy
Colusa Power Plant
Project No: 43-00066841.40

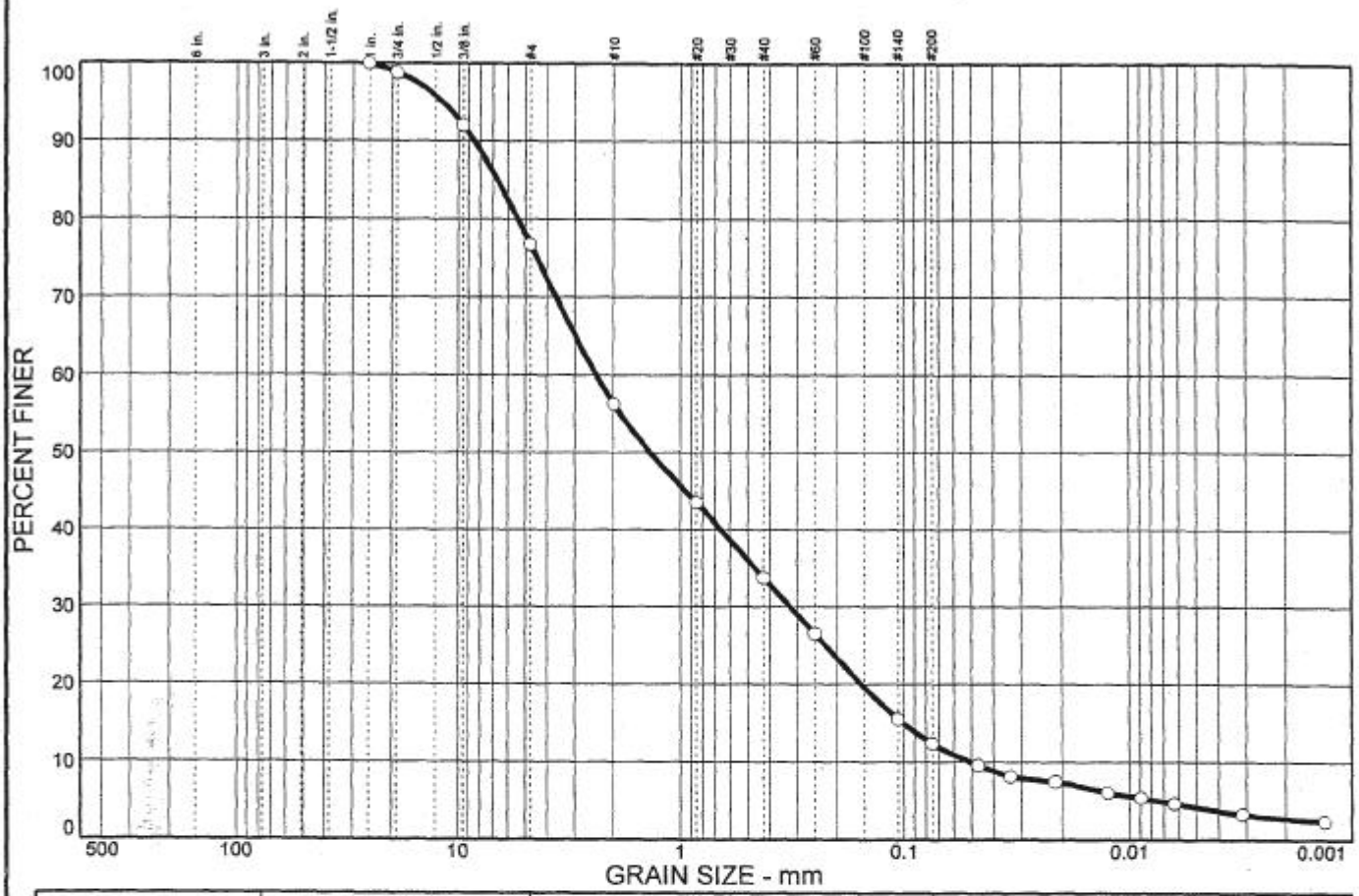
PARTICLE SIZE DISTRIBUTION REPORT - SAMPLE 3-SCN

URS

FIGURE 131-5

01/03/02 vsa ..\43-00066841.40\DR_Round 2\131-5_3SCN.cdr

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	1.2	22.1	20.4	22.6	21.3	8.2	4.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 in.	100.0		
3/4 in.	98.8		
3/8 in.	92.0		
#4	76.7		
#10	56.3		
#20	43.5		
#40	33.7		
#60	26.5		
#140	15.5		
#200	12.4		

* (no specification provided)

Soil Description

Olive brown Silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 6.69 D_{60}= 2.39 D_{50}= 1.37
D_{30}= 0.324 D_{15}= 0.101 D_{10}= 0.0507
C_u= 47.24 C_c= 0.86

Classification

USCS= SM AASHTO=

Remarks

Sample No.: Source of Sample: 4-SCN Date:
Location: Elev./Depth: 0.3"

SIGNET TESTING LABS, INC.

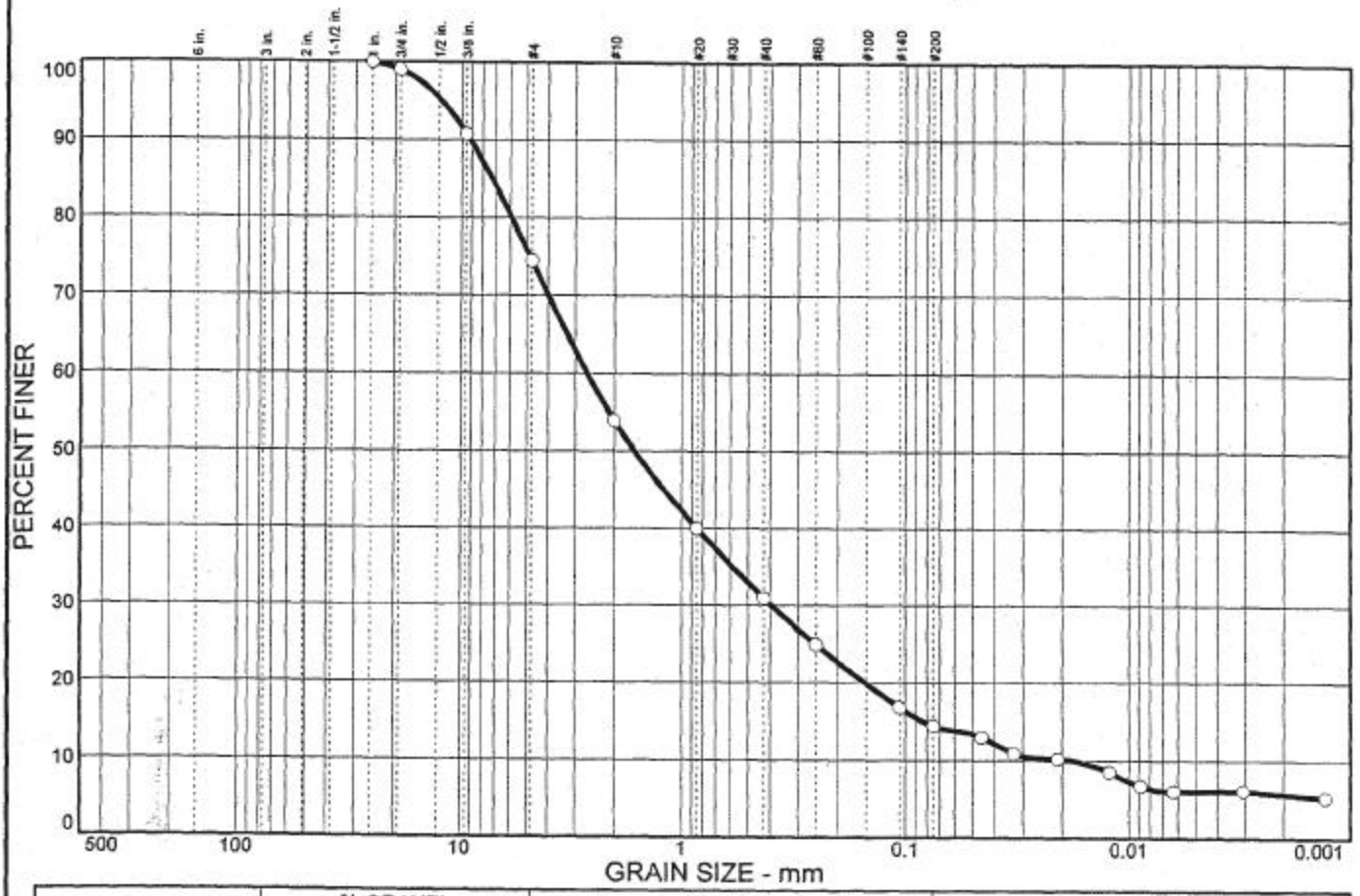
Client: URS/Dames & Moore
Project: Reliant Energy
Colusa Power Plant
Project No: 43-00066841.40

PARTICLE SIZE DISTRIBUTION REPORT - SAMPLE 4-SCN

URS **FIGURE 131-6**

01/03/02 vsa ..\43-00066841.40\DR_Round 2\131-6_4SCN.cdr

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	1.0	24.6	20.5	23.0	16.5	8.4	6.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 in.	100.0		
3/4 in.	99.0		
3/8 in.	90.7		
#4	74.4		
#10	53.9		
#20	40.0		
#40	30.9		
#60	24.9		
#140	16.8		
#200	14.4		

* (no specification provided)

Soil Description

Light brown Silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 7.28 D_{60}= 2.65 D_{50}= 1.63
D_{30}= 0.394 D_{15}= 0.0838 D_{10}= 0.0183
C_u= 144.84 C_c= 3.20

Classification

USCS= SM AASHTO=

Remarks

Sample No.: Source of Sample: 5-SCN Date:
Location: Elev./Depth: 0.3"

SIGNET TESTING LABS, INC.

Client: URS/Dames & Moore
Project: Reliant Energy
Colusa Power Plant
Project No: 43-00066841.40

PARTICLE SIZE DISTRIBUTION REPORT - SAMPLE 5-SCN

URS **FIGURE 131-7**

01/03/02 vsa ..\43-00066841.40\DR_Round 2\131-7_5SCN.cdr

ATTACHMENT 131-1

Mark Strehlow

11/06/2001 03:10 PM

To: Fife_Env@compuserve.com
cc: kgolden@energy.state.ca.us, cprice@mako.com, dfurstenwerth@reliant.com, Ray Rice/SanFrancisco/URSCorp@URSCORP
Subject: Sampling Protocol (Rev. 1)

Les:

Thank you your prompt review of the sampling protocol sent to you earlier today. Based on your review and comments, the revised protocol (Rev. 1) for sampling the road surfaces in Colusa County for silt content and moisture is attached. Samples are planned to be collected as soon as tomorrow morning.

SamplingProtocol(Rev. 1).d

Please contact me with any questions or comments.

Regards,

Mark Strehlow
URS Corporation
(510) 874-3055

ATTACHMENT 131-1

URS

Memorandum

Date: November 6, 2001

From: Ray Rice, SFO

Subject: **Proposed Protocol for Sampling and Analysis of Gravel-Surfaced Road(s) (Rev. 1)**

The following protocol is proposed for the sampling and analysis of gravel-surfaced roads in Colusa County, California to provide a basis for the calculation of air emission reduction credits (ERCs) associated with the Application for Certification (AFC) for the Colusa Power Plant, proposed by Reliant Energy.

- Using a manual approach, obtain samples of gravel surfacing from anticipated depths of 0 to 3 inches at three locations at each sampling station: left shoulder; centerline; right shoulder. Sampled material must be representative of pavement section with respect to silt content.

- Sampling stations to be spaced at nominal intervals of not greater than 2 miles along road(s) to be considered for paving. If road segment is less than 4 miles in length, a minimum of three sampling stations is required.

- Obtain manual sample of gravel from each sampling location and preserve in plastic-lined bulk sample sack for laboratory grain-size distribution analysis.

- Preserve one discrete sample from each sampling location in plastic bag for laboratory testing of moisture content.

- In laboratory, composite the 3 manual samples from each sampling station (left shoulder, centerline, right shoulder) and perform a mechanical analysis consisting of sieve analysis (ASTM D422) and hydrometer analysis (ASTM D1140).

- In laboratory, composite the 3 discrete samples from each sampling station and analyze moisture content by ASTM D2216.

To summarize, the testing program will consist of:

- 6 samples (3 manual samples for grain size distribution, 3 discrete for moisture content), depth 0 to 6 inches, at left shoulder, centerline, right shoulder at sampling stations spaced at nominal 2 mile intervals.

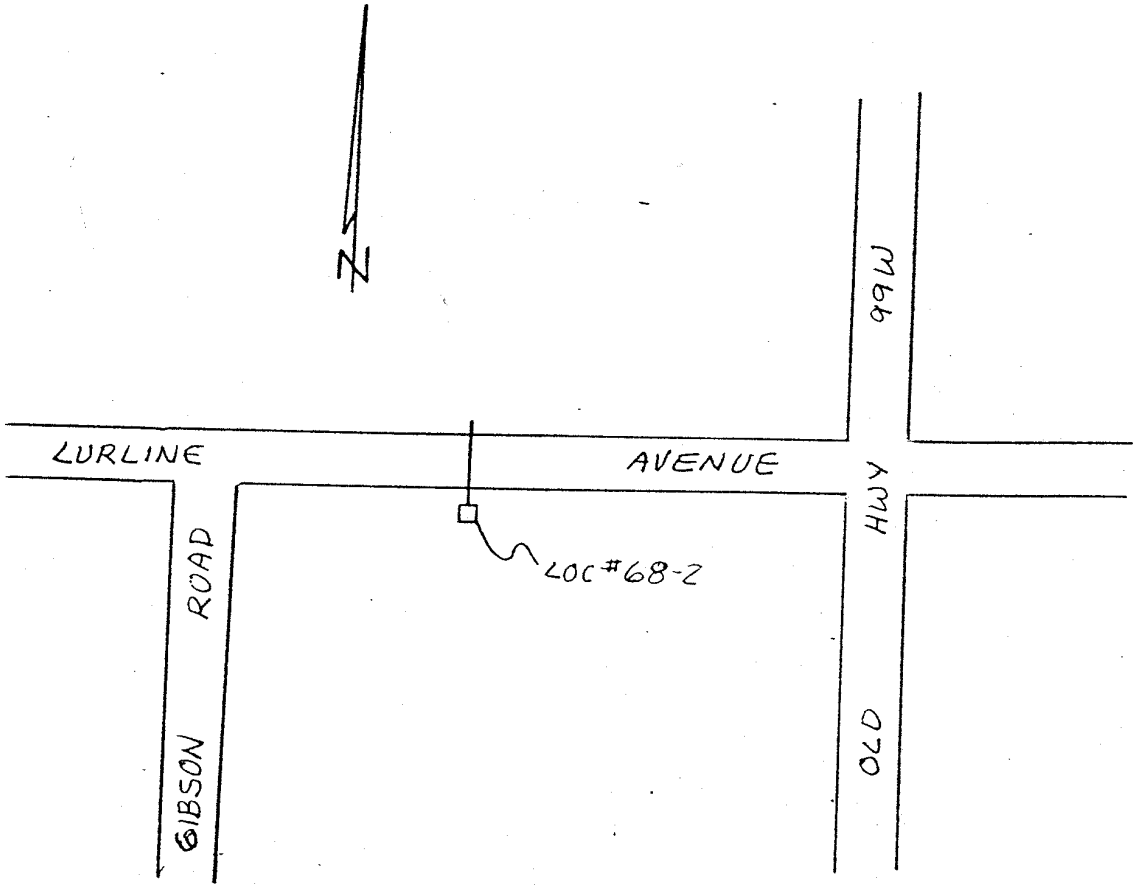
- Analysis of particle size distribution, sieve analysis plus hydrometer analysis, from 3 point composite from each sampling station.

- Analysis of moisture content from 3 point composite sample at each sampling station.

STATION NO.	LOCATION	163	ROAD NUMBE
68-2	300 FEET WEST OF OLD HWY 99W		68

DATE-DOWN / E-UP	TIME / TIME	READING / READING	READING DIFF / TOT TIME	PRORATED NO. 24hr.	PRORATED NO. 48hr.	COMMENTS
3/21/85	2:05 P.M.	45300	32 / 23H-35M	33 / 24hrs.	/ 48hrs.	✓
3/22/85	1:40 P.M.	45332				
12-26-90	2:40 P.M	19000	23 / 23H-0m	24 / 24hrs.	/ 48hrs.	✓
12-27-90	1:40 P.M.	19023				
6-92	11:30AM	69800	52 / 22H-30M	55 / 24hrs.	/ 48hrs.	✓
7-7-92	10:00 P.M	69852				
9-18-96	11:00AM	0000	252 / 26H-0M	233 / 24hrs.	/ 48hrs.	
9-19-96	13:00 PM	252				
5-17-00	13:00	-0-	181 / 23H-0M	189 / 24hrs.	/ 48hrs.	
5-18-00	12:00 PM	181				
			/	/ 24hrs.	/ 48hrs.	
			/	/ 24hrs.	/ 48hrs.	

H-HOURS M-MINUTES

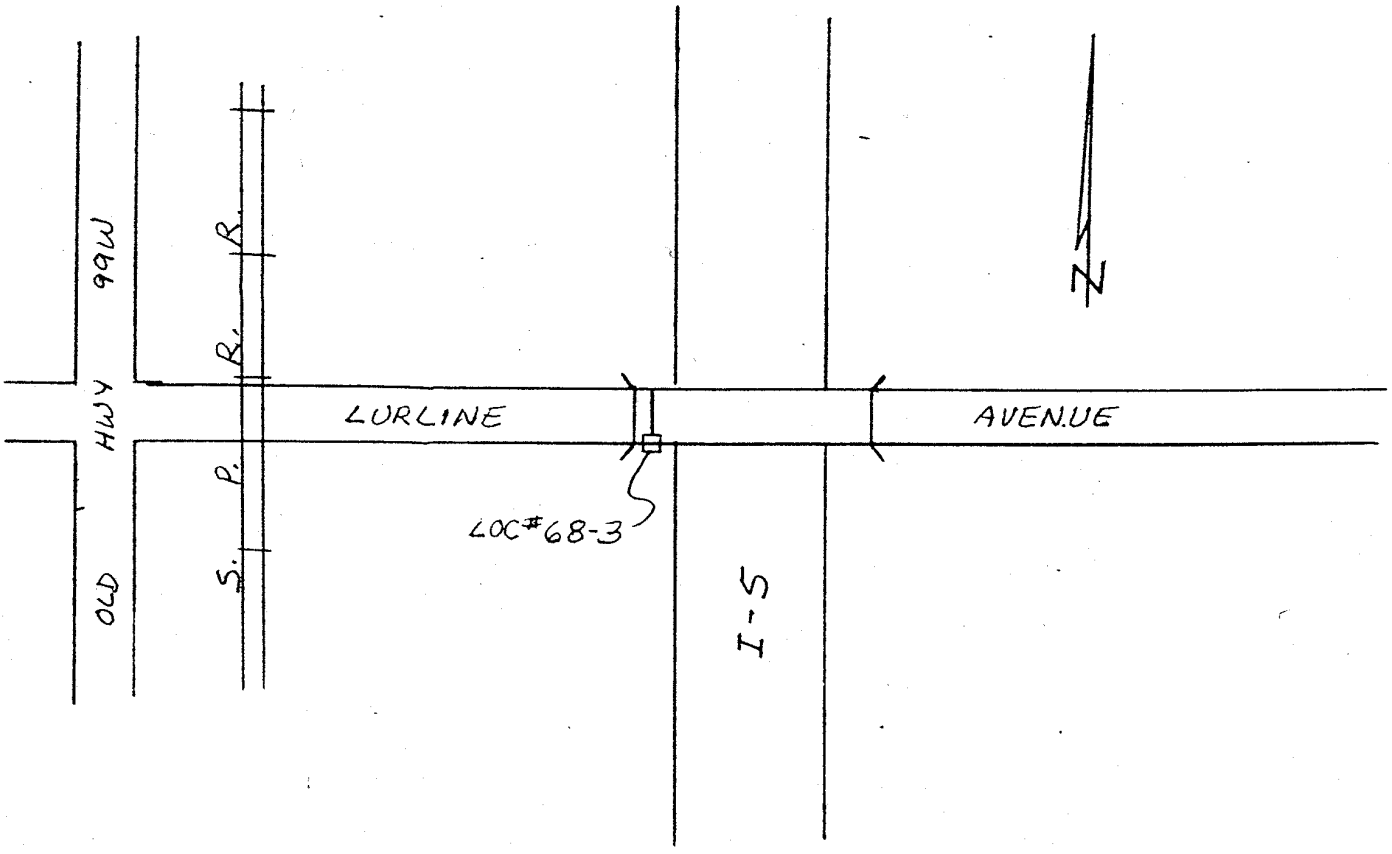


ATTACHMENT 131-2

STATION NO.	LOCATION	ROAD NUMBER
68-3	@ I-5 OVERPASS E/O OLD HWY 99W	68

DATE-DOWN / TE-UP	TIME / TIME	READING / READING	READING DIFF / TOT TIME	PRORATED NO. 24hr.	PRORATED NO. 48hr.	COMMENTS
3/21/85	2:15P.M.	21000	81 / 23H-30M	83 / 24hrs.	/ 48hrs.	✓
3/22/85	1:45P.M.	21081				
12-27-90	1:35PM	00000	86 / 23H-25M	88 / 24hrs.	/ 48hrs.	✓
12-28-90	1:00 P.M	00086				
7-6-92	11:10AM	54300	44 / 22H-45M	46 / 24hrs.	/ 48hrs.	✓
7-7-92	9:55AM	54344				
9-16-96	10:50AM	75549	85 / 28H-25M	72 / 24hrs.	/ 48hrs.	
9-17-96	13:15 PM	75634				
5-17-00	12:40 PM	-0-	139 / 24H-25M	137 / 24hrs.	/ 48hrs.	
5-18-00	13:05	139				
			/	/ 24hrs.	/ 48hrs.	
			/	/ 24hrs.	/ 48hrs.	

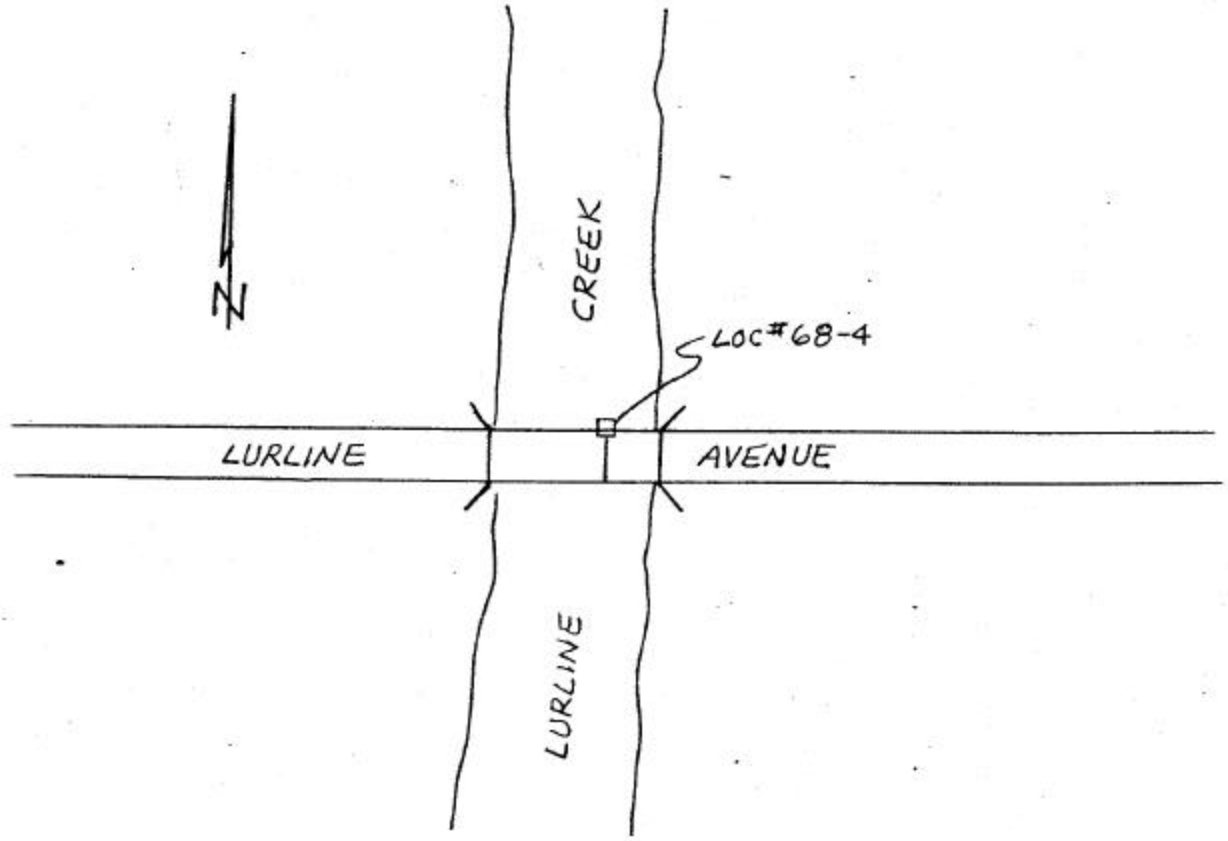
H-HOURS M-MINUTES



ATTACHMENT 131-3

STATION NO.	LOCATION					ROAD NUMBER
68-4	@ LURLINE CREEK BRIDGE (68L)					68
DATE-DOWN / DATE-UP	TIME / TIME	READING / READING	READING DIFF / TOT TIME	PRORATED NO. 24hr.	PRORATED NO. 48hr.	COMMENTS
3/21/85	2:20 P.M.	02700	71 / 23H30M	73 / 24hrs.	/ 48hrs.	✓
3/22/85	1:50 P.M.	02771				
12-27-90	1:30 P.M.	45079	78 / 23 H. 20m	80 / 24hrs.	/ 48hrs.	✓
12-28-90	12:50 P.M.	45157				
7-6-92	10:55 AM	20300	125 / [illegible]	131 / 24hrs.	/ 48hrs.	✓
7-7-92	9:35 PM	20425				
7-18-96	11:00 Am	[illegible]	215 / 26H-0m	207 / 24hrs.	/ 48hrs.	
7-19-96	13:00 Pm	233				
5-17-00	12:55	-0-	147 / 24H-55M	142 / 24hrs.	/ 48hrs.	
5-18-00	13:50	147				
			/	/ 24hrs.	/ 48hrs.	
			/	/ 24hrs.	/ 48hrs.	

H-HOURS M-MINUTES

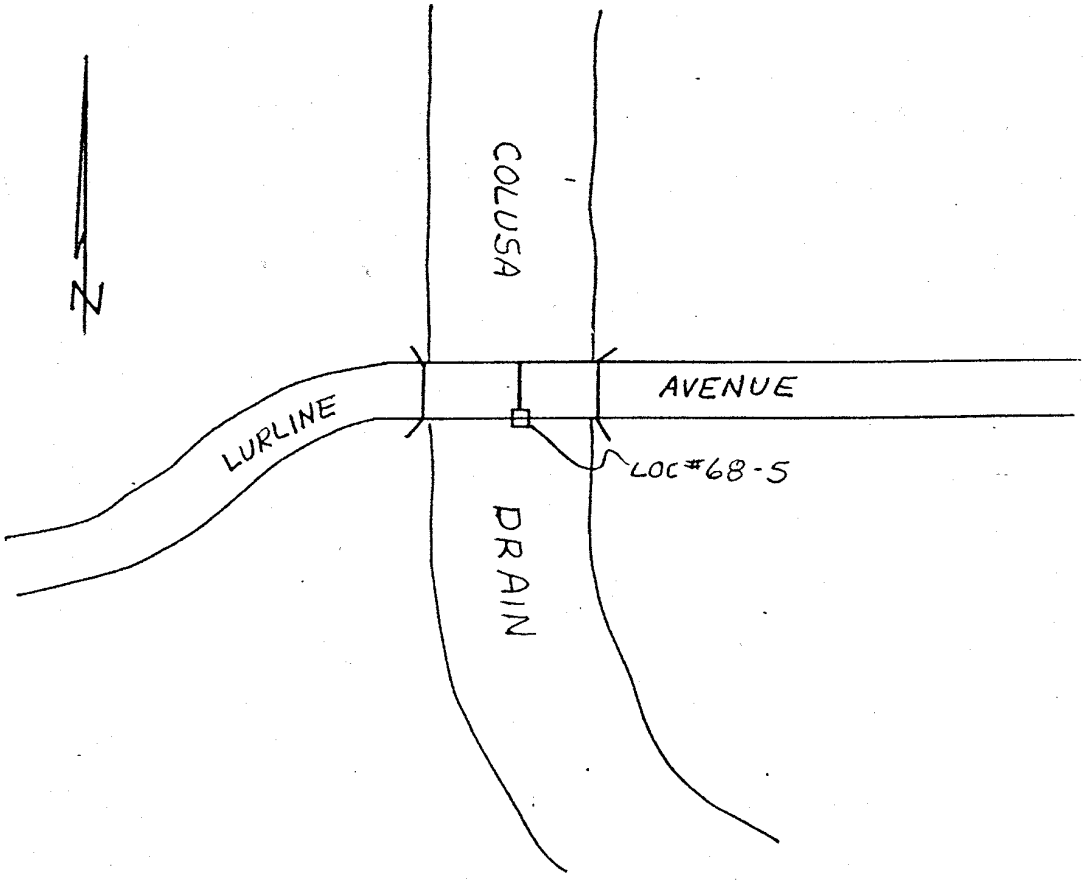


ATTACHMENT 131-4

STATION NO.	LOCATION	166	ROAD NUMBER
68-5	@ COLUSA DRAIN BRIDGE (68P)		68

DATE-DOWN / DATE-UP	TIME / TIME	READING / READING	READING DIFF / TOT TIME	PRORATED NO. 24hr.	PRORATED NO. 48hr.	COMMENTS
3/21/85	2:35 P.M.	69200	108	111		
3/22/85	2:00 P.M.	69308	23H-25M	24hrs.	48hrs.	✓
12-26-90	2:15 P.M.	44820	256	266		
12-27-90	1:20 P.M.	45076	23H-5M	24hrs.	48hrs.	✓
7-6-92	9:50 AM	74200	173	175		
7-7-92	9:50 AM	74373	23H-40M	24hrs.	48hrs.	✓
9-17-96	10:00 AM	0000	213	213		
9-18-96	10:00 AM	213	24H-0M	24hrs.	48hrs.	
5-12-97	9:15 AM	0000	250	248		
5-13-97	9:25 AM	250	24H-10M	24hrs.	48hrs.	
5-17-00	13:05	-0-	207	204		
5-18-00	13:25	207	24H-20M	24hrs.	48hrs.	
				24hrs.	48hrs.	

H-HOURS M-MINUTES



ATTACHMENT 131-5

ATTACHMENT 131-6

Mark Strehlow

11/20/2001
12:38 PM

To: kchew@energy.state.ca.us
cc: Denise Heick/SanFrancisco/URSCorp@URSCORP
Subject: Reliant Colusa - Road Paving Preliminary Submittal

Kristy:

Per your request attached is a copy of the email that was sent to CCAPCD.

Regards,

Mark Strehlow
URS Corporation

----- Forwarded by Mark Strehlow/Oakland/URSCorp on 11/20/2001 12:42 PM -----

Mark Strehlow

11/15/2001
07:59 AM

To: Fife_Env@compuserve.com
cc: kgolden@energy.state.ca.us, brian_d_walker@reliantenergy.com, dfurstenwerth@reliant.com, Denise Heick/SanFrancisco/URSCorp@URSCORP
Subject: Reliant Colusa - Road Paving Preliminary Submittal

Les:

As we discussed on the phone yesterday attached is a rough analysis of the potential PM10 offsets from road paving in Colusa County.
Included is a brief text summary and a spreadsheet containing all the calculations. This is a preliminary submittal. When final, it will include copies of all data reports, figures showing the traffic count locations and road surface sampling locations, protocol for sampling, and a complete discussion of the analysis performed. An agreement between the county and Reliant that assigns any credits received to Reliant will also be prepared.


Offset Memo.doc


Paving Offsets.xls

Please review and comment on the attached.

Please contact me if you have any questions or require additional information.

Regards,

Mark Strehlow
URS Corporation
(510) 874-3055.

ATTACHMENT 131-6

Preliminary Results of Road Paving Offset Evaluation

This memo summarizes the results of an investigation into using PM_{10} credits from road paving in Colusa County as a portion of the offsets required for the proposed Colusa Power Plant (CPP).

The candidate road for paving is Lurline Avenue. Pavement would be constructed between Grover Avenue on the east and Gibson Road on the west, just over 8 miles. Grover Ave. meets Lurline Ave. about one mile west of the town of Colusa. Lurline Ave. is paved east of Grover. The entire segment to be paved falls within 20 miles of the CPP site so the distance ratio for offset credits would be 1.2:1. The estimated credit from road paving per quarter is shown in Table 1.

Table 1 Comparison of PM_{10} Offsets Required to Potential Road Paving Credits

Quarter	Estimated Quarterly PM_{10} Emissions From CPP[1] (tons)	Credit Required After Distance Factor of 1.2 Applied (tons)	Estimated Road Paving Credit Available[2] (tons)	Additional Credit Required or (Surplus) (tons)
1	32.86	39.43	34.0	5.43
2	35.03	42.04	46.8	(4.76)
3	38.09	45.71	51.8	(6.09)
4	32.92	39.50	42.2	(2.70)

1. From PDOC page 12
2. From paving 8 miles of Lurline Ave. see notes below.

- Credit based on $PM_{2.5}$ emissions per the methodology suggested by CARB.
- Average $PM_{2.5}$ fraction represents 58% of the PM_{10} fraction.
- Average traffic count of 223 vehicles per day on this segment.
- Average moisture of 2.9%
- Average silt content of 13.5%
- Quarterly variation due to different rain days per quarter (5 years of Maxwell data used)
- Estimated mean vehicle weight of 2.2 tons.
- Emissions from paved roads subtracted from credit.
- Estimated silt loading on paved roads of 10 gram/m^2.

Emissions from unpaved roads

Parameters:		Default value	Units	Used value	Comments
silt content	s	6.4	%	13.5	Arithmetic average of samples 1 SCN through 5 SCN
moisture content	M	0.03-20	%	2.9	Arithmetic average of samples 1 SCN through 5 SCN
# of days with rain	P	65	days	58	The used value is a 5-year average for Maxwell Station
average weight	W	1.5-290	tons	2.2	Estimate

Constants

Constant	Value
k	2.6
a	0.8
b	0.4
c	0.3

Per AP-42, Section 13.2.2

Emission Factor: E_{PM10} 1.131 lb/VMT

Annual

Emission Factor with natural mitigation

Annual E_{PM10} 0.952 lb/VMT

	1Q	2Q	3Q	4Q
Days of rain per quarter, average for 5 years	30.0	8.8	1.2	17.8
Quarterly PM10 emission factors with natural mitigation, lb/VMT	0.754	1.022	1.117	0.912

Emissions from paved roads

Parameters:		Default value	Units	Used value	Comments
silt loading	sL	0.02-400	g/m2	10	Estimate
average weight	W	1.5-3	tons	2.2	Estimate
# of days with rain	P	65	days	58	The used value is a 5-year average for Maxwell Station

Constants

	k	7.3	g/VMT		

Emission Factor:

Annual	E_{PM10}	13.05	g/VMT	0.029	lb/VMT

Emission Factor with natural mitigation

Annual	E_{PM10}	12.01	g/VMT	0.026	lb/VMT

Quarterly emission factors with natural mitigation:

Q1	E_{PM10}	10.87	g/VMT	0.024	lb/VMT
Q2	E_{PM10}	12.42	g/VMT	0.027	lb/VMT
Q3	E_{PM10}	12.96	g/VMT	0.029	lb/VMT
Q4	E_{PM10}	11.79	g/VMT	0.026	lb/VMT

Results of surface sample analysis

Sample	Location	Moisture	Silt (PM75)	PM10	PM2.5	PM2.5/PM10
	nearest cross street	**%**	**%**	**%**	**%**	
1-SCN	Grover Ave.	5.1	13.6	2.5	1	0.40
2-SCN	Jamieson Rd.	2.9	12.5	6	3.5	0.58
3-SCN	San Jose Rd.	2.5	14.7	8	5	0.63
4-SCN	Pole Line Rd.	2.3	12.4	6	3	0.50
5-SCN	Old 99	1.8	14.4	7.5	6	0.80
Average		2.9	13.5	6	3.7	0.58

Ref: Signet Testing Labs, Inc. Report

Traffic count data

Station No.	**68-2**	**68-3**	**68-4**	**68-5**	**68-6**	
Cross Street	**Old 99**	**I-5**	**Lurline Creek**	**Colusa Drain**	**Grover Ave.**	**Overall Average**
Period	**Vehicles per 24 hours**					
1Q/85	33	83	73	111	488	
4Q/90	24	88	80	266	534	
3Q/92	55	46	132	175	707	
3Q/93	NR	NR	NR	NR	766	
3Q/96	233	72	207	213	336	
2Q/97	NR	NR	NR	248	673	
2Q/00	189	137	142	204	653	
Average	107	85	127	203	594	223

Source: Colusa County DPW
NR = Not Reportred

Quarterly results with natural mitigation

Number of vehicles counted per day:

223

Unpaved Road Emissions (lbs PM10/mile/quarter)

1Q	15138
2Q	20739
3Q	22908
4Q	18720

Paved Road Emissions (lbs PM10/mile/quarter)

1Q	481
2Q	556
3Q	586
4Q	533

Total Reduction (tons PM10/mile/quarter)

1Q	7.3
2Q	10.1
3Q	11.2
4Q	9.1

Total ERC (tons PM2.5/8-mile segment/quarter)

1Q	34.0
2Q	46.8
3Q	51.8
4Q	42.2

ATTACHMENT 131-7

Mark Strehlow

11/20/2001
04:45 PM

To: Fife_Env@compuserve.com
cc: kgolden@energy.state.ca.us, kchew@energy.state.ca.us, brian_d_walker@reliantenergy.com, dfurstenwerth@reliant.com, Denise Heick/SanFrancisco/URSCorp@URSCORP, Ray Rice/SanFrancisco/URSCorp@URSCORP, jgrattan@grattangalati.com
Subject: Reliant Colusa - Road Paving Preliminary Submittal (Rev. 1)

Les:

Attached to this email are a revised memo and a revised spreadsheet reflecting comments you made on 11/19/01 to the information that was originally submitted on 11/15.


Offset Memo(Rev. 1).dc


Paving OffsetsRev1.xl

To summarize your comments:

Traffic count data from station no. 68-6 were dropped because that location is on a paved portion of Lurline road
Traffic count data prior to 1996 were dropped because they were too old to be representative of current traffic
Existing road segment contains some paved bridges and paved approaches. Colusa County DPW measured the segment on 11/19/01 to be 7.44 miles.

Each file is noted as Revision 1 to differentiate it from the original submittal. Please let me know if this does not incorporate all of your comments.

Regards,

Mark Strehlow
URS Corporation

ATTACHMENT 131-7

Preliminary Results of Road Paving Offset Evaluation (Rev. 1)

This memo summarizes the results of an investigation into using PM_{10} credits from road paving in Colusa County as a portion of the offsets required for the proposed Colusa Power Plant (CPP).

The candidate road for paving is Lurline Avenue. Pavement would be constructed between Grover Avenue on the east and Gibson Road on the west, a distance of 7.44 miles excluding bridges and current paved segments. Grover Ave. meets Lurline Ave. about one mile west of the town of Colusa. Lurline Ave. is paved east of Grover. The entire segment to be paved falls within 20 miles of the CPP site so the distance ratio for offset credits would be 1.2:1. The estimated credit from road paving per quarter is shown in Table 1.

Table 1 Comparison of PM_{10} Offsets Required to Potential Road Paving Credits

Quarter	Estimated Quarterly PM_{10} Emissions From CPP[1] (tons)	Credit Required After Distance Factor of 1.2 Applied (tons)	Estimated Road Paving Credit Available[2] (tons)	Additional Credit Required (tons)
1	32.86	39.43	24.8	14.63
2	35.03	42.04	34.2	7.84
3	38.09	45.71	37.8	7.91
4	32.92	39.50	30.8	8.70

1. From PDOC page 12
2. From paving 7.44 miles of Lurline Ave. see notes below.

- Credit based on $PM_{2.5}$ emissions per the methodology suggested by CARB.
- Average $PM_{2.5}$ fraction represents 58% of the PM_{10} fraction.
- Average traffic count of 175 vehicles per day on this segment.
- Average moisture of 2.9%
- Average silt content of 13.5%
- Quarterly variation due to different rain days per quarter (5 years of Maxwell data used)
- Estimated mean vehicle weight of 2.2 tons.
- Emissions from paved roads subtracted from credit.
- Estimated silt loading on paved roads of 10 gram/m^2.

Emissions from unpaved roads

Parameters:		Default value	Units	Used value	Comments
silt content	s	6.4	%	13.5	Arithmetic average of samples 1 SCN through 5 SCN
moisture content	M	0.03-20	%	2.9	Arithmetic average of samples 1 SCN through 5 SCN
# of days with rain	P	65	days	58	The used value is a 5-year average for Maxwell Station
average weight	W	1.5-290	tons	2.2	Estimate

Constants

Constant	Value
k	2.6
a	0.8
b	0.4
c	0.3

Per AP-42, Section 13.2.2

Emission Factor: E_{PM10} 1.131 lb/VMT

Annual

Emission Factor with natural mitigation

Annual E_{PM10} 0.952 lb/VMT

	1Q	2Q	3Q	4Q
Days of rain per quarter, average for 5 years	30.0	8.8	1.2	17.8
Quarterly PM10 emission factors with natural mitigation, lb/VMT	0.754	1.022	1.117	0.912

Emissions from paved roads

Parameters:		Default value	Units	Used value	Comments
silt loading	sL	0.02-400	g/m2	10	Estimate
average weight	W	1.5-3	tons	2.2	Estimate
# of days with rain	P	65	days	58	The used value is a 5-year average for Maxwell Station

Constants

	k	7.3	g/VMT		

Emission Factor:

Annual	E_{PM10}	13.05	g/VMT	0.029	lb/VMT

Emission Factor with natural mitigation

Annual	E_{PM10}	12.01	g/VMT	0.026	lb/VMT

Quarterly emission factors with natural mitigation:

Q1	E_{PM10}	10.87	g/VMT	0.024	lb/VMT
Q2	E_{PM10}	12.42	g/VMT	0.027	lb/VMT
Q3	E_{PM10}	12.96	g/VMT	0.029	lb/VMT
Q4	E_{PM10}	11.79	g/VMT	0.026	lb/VMT

Results of surface sample analysis

Sample	Location	Moisture	Silt (PM75)	PM10	PM2.5	PM2.5/PM10
	nearest cross street	**%**	**%**	**%**	**%**	
1-SCN	Grover Ave.	5.1	13.6	2.5	1	0.40
2-SCN	Jamieson Rd.	2.9	12.5	6	3.5	0.58
3-SCN	San Jose Rd.	2.5	14.7	8	5	0.63
4-SCN	Pole Line Rd.	2.3	12.4	6	3	0.50
5-SCN	Old 99	1.8	14.4	7.5	6	0.80
Average		2.9	13.5	6	3.7	0.58

Ref: Signet Testing Labs, Inc. Report

Traffic count data

Station No.	**68-2**	**68-3**	**68-4**	**68-5**	**Period**
Cross Street	**Old 99**	**I-5**	**Lurline Creek**	**Colusa Drain**	**Average**
Period	**Vehicles per 24 hours**				
3Q/96	233	72	207	213	181
2Q/00	189	137	142	204	168
				Overall Average	175

Source: Colusa County DPW

ATTACHMENT 131-7

Number of vehicles counted per day:

175

Unpaved Road Emissions (lbs PM10/mile/quarter)

1Q	11879
2Q	16275
3Q	17978
4Q	14691

Paved Road Emissions (lbs PM10/mile/quarter)

1Q	378
2Q	436
3Q	460
4Q	418

Total Reduction (tons PM10/mile/quarter)

1Q	5.8
2Q	7.9
3Q	8.8
4Q	7.1

Total ERC (tons PM2.5/7.44-mile segment/quarter)

1Q	24.8
2Q	34.2
3Q	37.8
4Q	30.8

DATA REQUEST

132. Please provide information to justify the use of road paving as appropriate PM_{10} mitigation for a combustion source in Colusa County. This justification should include a comparison of the hourly PM_{10} emission fluctuations from Lurline Road vs. those anticipated from the CPP.

RESPONSE

Not all of the required PM_{10} mitigation required for combustion sources of this project is obtained from road paving. As discussed in the response to Data Request 126, over three-fourths of the PM_{10} mitigation will be obtained through the reduction of combustion of agricultural waste material. The remainder of the PM_{10} mitigation will come from paving a portion of Lurline Road.

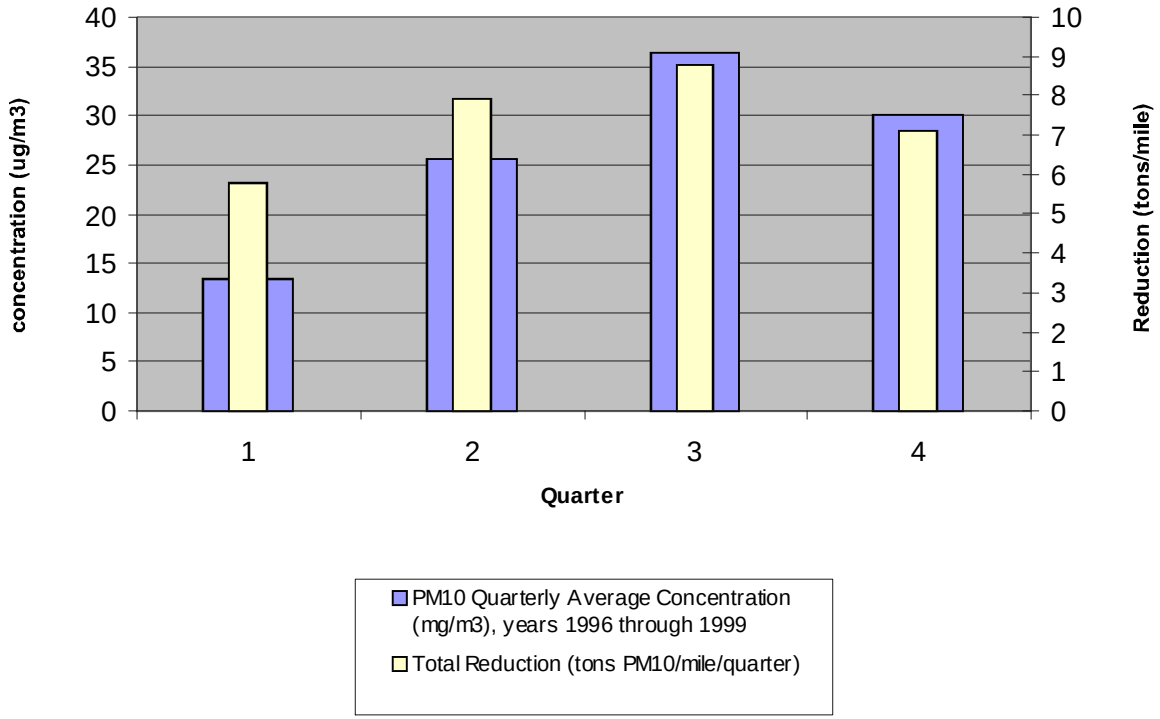
Discussions between the Applicant and Mike Tollstrup and Beverly Werner of the California Air Resources Board (CARB) staff were held by conference call on November 6, 2001. The CARB representatives on that call suggested a methodology for using road paving as the source of the remaining portion of the PM_{10} mitigation for this project. The method scales down the calculated PM_{10} credit by multiplying it by the ratio of $PM_{2.5}$ to PM_{10} in the road surface. This $PM_{2.5}$ ratio method was used in determining the PM_{10} credit available from road paving (see response to Data Request 131, above). Therefore, the proposed PM_{10} mitigation is appropriate per CARB guidance.

Comparison of fluctuations of PM_{10} emissions from Lurline Road to PM_{10} emissions from the CPP is required, by CCAPCD regulations, to be performed on a quarterly basis. This comparison is provided for PM_{10} and the other criteria pollutants as a portion of the response to Data Request 134.

Impacts from the CPP were modeled in the AFC (see AFC Section 8.1.2.3) without considering any benefit from PM_{10} offsets. In that analysis, both the 24-hour and the annual PM_{10} impacts from the CPP were shown to be insignificant when compared to the applicable prevention of significant deterioration (PSD) significant impact level (see AFC Table 8.1-20). Typically, analyses of PM_{10} emission impacts are performed on averaging times no shorter than 24 hours. This allows comparison to the National and California Ambient Air Quality Standards (AAQS), which have the 24-hour standard as the shortest averaging period for PM_{10}. There are no NAAQS or CAAQS for PM_{10} using an hourly averaging time.

Seasonal fluctuations in the amount of PM_{10} reduced due to paving Lurline Road are comparable to fluctuations in local ambient PM_{10} concentration. Figure 132-1 compares the potential PM_{10} reductions from paving to ambient PM_{10} measurements taken at the Colusa-Sunrise monitoring station. The potential road paving reductions fluctuate because of natural attenuation of PM_{10} emissions due to rainfall (see response to Data Request 131). Data from 1996 through 1999 were used for both series. The profiles of the two series are very similar, with each minimum occurring in the first quarter and each maximum occurring in the third quarter. This similarity further supports the use of road paving as a source of PM_{10} offsets in Colusa County.

Figure 132-1 Ambient PM_{10} Concentration at Colusa and Potential Reduction From Paving Lurline Road



DATA REQUEST

133. Please provide additional information regarding the potential ERC source in Glenn County. This information should include the type of emission reduction and location of the emission reduction. This information can be provided under confidential cover. However, the final offset package must be made public by the time the Preliminary Staff Assessment is published.

RESPONSE

The ERCs from the source in Glenn County will no longer be required by the Colusa Power Plant project.

Staff asserts that the final offset package must be made public by the time the Preliminary Staff Assessment is published. The Committee Order allows the FDOC to be issued and accepted into the CEC record after the Preliminary Staff Assessment. The FDOC will be released after the option agreements are finalized, at which time the offset sources will no longer be confidential. The public will have ample opportunity to comment on the identified offset sources through circulation of the FDOC, an evidentiary hearing on the FDOC, circulation of a revised Presiding Member's Proposed Decision (PMPD), and finally at the Commission hearing to consider the PMPD.

BACKGROUND

To fully mitigate the project under CEQA, in addition to local offset requirements, the Energy Commission requires that all non-attainment pollutants and their precursors be offset at a minimum ratio of 1:1. The affected pollutants for the CPP are NO_X, VOC, PM_{10}, and SO_2 (based on the project area's non-attainment status of State P_{M10} and ozone standards). Staff has received a number of offset source proposals from the applicant, including more recent proposals for ERC creation through road paving and interpollutant SO_2 for PM_{10} offsets. Staff is unclear regarding the current status of all offset sources being proposed by the applicant.

DATA REQUEST

134. Please provide a clear tabular listing of the emission reduction credits proposed for each pollutant requiring CEQA offset mitigation showing that the ERC proposed will meet both the local offset requirements and the Energy Commission staff position of no net emissions increase of non-attainment pollutants (NO_X, VOC, PM_{10}, and SO_2).

RESPONSE

Offset strategies for all applicable criteria air pollutants are provided in this response. For all pollutants that require offsets, the tables below show that more offsets are available than required to meet the CEC staff position of no net emissions increase for the project. Offset strategies are presented on a quarterly basis consistent with applicable CCAPCD regulations.

The proposed operational conditions for the CPP have been revised from those presented in the AFC to better fit the quarterly profile of the ERC's resulting from the conversion of the Delevan Compressor Station (Delevan). As mentioned in the response to Data Request 123, the increased VOC potential to emit at Delevan will be offset through interpollutant trading by the NO_X decreases that will result from the equipment replacement. In the first and fourth quarters, the NO_X reductions are more than sufficient to offset the proposed increase in VOC at Delevan and still meet all offset requirements for NO_X and VOC at CPP. Therefore, the CPP emissions inventories for the first and fourth quarters have not been revised and are included below (Table 134-1) unchanged. However,after accounting similarly for VOC increases at Delevan, the second and third quarters as originally proposed in the AFC would have insufficient NO_X ERCs from Delevan to fully offset the CPP, so operational conditions have been revised. After this revision, all CPP NO_X ERC requirements are met by the Delevan conversion, and only VOC ERCs would be required to be supplemented. It is anticipated that the remaining shortfall in VOC ERCs would be met by the purchase of agricultural burning ERCs (see response to Data Request 126).

Table 134-1 includes modifications to the CPP emissions inventories in the second and third quarters that reduce the shortfall. Modifications to the CPP emissions inventories in Q2 and Q3 include:

1. reducing the number ofprojected turbine starts each quarter,
2. accounting for up to 200 hours in each quarter when the unit would not be running, and
3. reducing the VOC emission limit from 2.0 ppm to 1.6 ppm while the duct burners are operating during these two quarters.

The resulting turbine emissions are shown in Table 134-2. Auxiliary equipment emissions are unchanged and are shown in Table 134-3. Total CPP facility emissions are shown in

Table 134-4. Reliant is prepared to accept permit conditions reflecting a lower VOC emission limit during Q2 and Q3 when firing the duct burners.

An integrated approach is provided for the NO_X and VOC offset strategy because an inter-pollutant offset relationship is proposed. As previously discussed, the Delevan conversion will result in decreased NO_X and increased VOC. Therefore, the NO_X reductions from the conversion are first used to offset the increases in VOC, using an interpollutant trading ratio of 1.4:1. The remaining NO_X reductions are then reduced by a factor of 1.2 to account for the distance ratio, as required by CCAPCD regulations. These distance-adjusted NO_X emissions are used first to offset the proposed CPP NO_X emissions, then to offset the VOC emissions, again at a 1.4:1 ratio. Shortfalls in VOC offsets during the second and third calendar quarters will be offset using ERCs from the cessation of agricultural burning. A tabular representation of this sequential calculation is presented in Table 134-5.

PM_{10} and SO_X offset strategies are presented individually in Tables 134-6 and 134-7, respectively.

Tables 134-1 through 134-7

134-1

Quarterly and Annual Turbine Operating Conditions

	Q1	Q2 Special	Q3 Special	Q4	Total
Total Hours in Quarter	2160	2184	2208	2208	8760
Total Number of Cold Starts	4.5	2	1	4.5	12
Cold Start Duration (hr)	5.00	5.00	5.00	5.00	5.00
Total Number of Warm Starts	12.5	6	3	12.5	34
Warm Start Duration (hr)	2.17	2.17	2.17	2.17	2.17
Total Number of Hot Starts	50.0	50	20	50.0	170
Hot Start Duration (hr)	1.50	1.50	1.50	1.50	1.50
Total Number of Shutdowns	67.0	58	24	67.0	216
Shutdown Duration (hr)	0.50	0.5	0.5	0.50	0.50
Hours during starts and stops	158.08	127.02	53.51	158.08	497
Duct Burner Operation (hr)	700	1092	1472	736	4000
Hours down prior to starts	0	200	200	0	400
Full Operation w/o Duct Burners (hr)	1301.92	764.98	482.49	1313.92	3863

VOC Factor 80% DB only and only in Q2 and Q3

Rev 2 12/20/01 added Q2 &Q3 special for NOx and VOC

134-2

Turbine Emissions Based on Operating Conditions

	tons per quarter				tpy
Pollutant	**Q1**	**Q2**	**Q3**	**Q4**	**Annual**
NOx	40.90	36.12	34.13	39.27	150.41
CO	57.50	50.17	32.44	56.51	196.62
SO2	2.52	2.54	2.64	2.45	10.15
VOC	10.19	9.14	8.90	8.97	37.20
PM10	32.80	35.29	38.26	33.49	139.84
Cond.	winter min	ISO	ave sum	ISO	
Temp Used	14	60	87	60	

134-3

Ancillary Equip. Emissions

Aux.	FW Pump	Both
tpy	tpy	tpq
0.518	0.422	0.235
1.776	0.100	0.469
0.029	0.032	0.015
0.192	0.010	0.051
0.240	0.007	0.062

134-4

Facility Emissions (Turbines, Aux. Boiler and Fire Water Pump)

	tons per quarter				tpy
Pollutant	**Q1**	**Q2**	**Q3**	**Q4**	**Annual**
NOx	41.13	36.35	34.36	39.51	151.35
CO	57.97	50.63	32.91	56.98	198.49
SO2	2.54	2.55	2.66	2.46	10.21
VOC	10.24	9.19	8.95	9.02	37.40
PM10	32.86	35.35	38.32	33.55	140.08

134-5

NOx and VOC Offset Analysis

all units tons per quarter	Q1	Q2	Q3	Q4	Notes
Delevan NOx ERC	78.43	55.04	50.22	71.51	Per CCAPCD
Delevan VOC Increase	4.88	4.32	4.46	4.74	Per CCAPCD
Delevan NOx Equivalent	6.83	6.05	6.24	6.64	Delevan VOC times 1.4
Delevan Surplus NOx ERC	71.60	48.99	43.98	64.87	Delevan ERC minus Delevan Equiv.
ERC Applicable to CPP	59.67	40.83	36.65	54.06	Delevan Surplus NOx divided by 1.2
CPP NOx Emissions	41.13	36.35	34.36	39.51	From above emissions inventory
Excess NOx ERC	18.53	4.47	2.28	14.55	ERCs minus CPP NOx
Equivalent VOC	13.24	3.20	1.63	10.40	Excess NOx divided by 1.4
CPP VOC Emissions	10.24	9.19	8.95	9.02	From above emissions inventory
Remaining VOC Needed	-3.00	6.00	7.32	-1.38	Equiv. VOC minus CPP VOC
Potential Ag Burn ERC	0	7.91	9.57	0	From response to Data Request 126
Excess VOC ERC	3.00	1.91	2.25	1.38	

134-6

PM10 Offset Analysis

all units tons per quarter	Q1	Q2	Q3	Q4	Notes
CPP PM10 Emissions	32.86	35.35	38.32	33.55	From above emissions inventory
Delevan PM10 Increase	0.50	0.41	0.40	0.47	Per CCAPCD
Total PM10	33.36	35.76	38.72	34.02	CPP plus Delevan
Potential Ag Burn ERC	35.67	33.12	27.48	39.38	From response to Data Request 126
Remaining PM10 Needed	-2.31	2.64	11.24	-5.36	Total minus Ag Burn ERC
Potential Road Paving ERC	24.8	34.2	37.8	30.8	From response to Data Request 131
Excess PM10 ERC	27.11	31.56	26.56	36.16	

134-7

SO2 Offset Analysis

all units tons per quarter	Q1	Q2	Q3	Q4	Notes
CPP SO2 Emissions	2.54	2.55	2.66	2.46	From above emissions inventory
Delevan SO2 Increase	0.07	0.06	0.07	0.07	Per CCAPCD
Total SO2	2.61	2.61	2.73	2.53	CPP plus Delevan
Potential Ag Burn ERC	6.03	5.13	2.96	6.64	From response to Data Request 126
Excess SO2 ERC	3.42	2.52	0.23	4.11	

BACKGROUND

In order to assess the continuing air quality permitting issues under the timeframe for the assessment of this project, staff requires timely copies of all written communication between the applicant and the District.

DATA REQUEST

135. In Data Request #21, staff requested that the applicant provide all written project correspondence (including e-mails) between the District or USEPA and the applicant and as it occurs between the District or USEPA and applicant until the final commission decision for this case. It appears that the Energy Commission has not received this ongoing correspondence and therefore does not have all necessary information to assess the proposed project. Please forward and docket the requested communication, which has not otherwise been forwarded, since Data Request Response #21 was submitted in September 2001.

RESPONSE

Data Request 21, issued on August 22, 2001, requested from Reliant copies of all correspondence between the District, U.S. EPA and the Applicant, to date. In response to Data Request 21, Reliant, to the best of its knowledge, provided copies of all such correspondence, which is summarized below in Table 135-1, as Items 1 through 33. Data Request 21 further requested that Reliant provide copies of all additional correspondence between the District, U.S. EPA and the applicant. In an effort to satisfy this request, Reliant, to the best of its knowledge, has copied the CEC on correspondence since Data Request 21 was issued. Table 135-1 summarizes these documents as Items 34 through 57. In addition to trying to satisfy the requirements of Data Request 21, Reliant has also tried to comply with the request by the CEC Project Manager on November 20, 2001 to also provide copies to her for docketing. The actual documents that are summarized in Table 135-1, as Items 34 through 57 will be provided in a separate submittal.

Table 135-1
List of Correspondence

Item	Date	Document Type	From	To	Subject
1	3/19/01	Email	Les Fife, CCAPCD	Mark Strehlow, URS	Colusa APCD application
2	3/19/01	Email	Charles Price, CCAPCD	Mark Strehlow, URS	PG&E Delevan
3	3/19/01	Email	Charles Price, CCAPCD	Mark Strehlow, URS	PG&E Delevan
4	3/19/01	Email	Mark Strehlow, URS	Charles Price, CCAPCD	Re: PG&E Delevan
5	3/21/01	Email	Charles Price, CCAPCD	Mark Strehlow, URS	Re: PG&E Delevan
6	3/21/01	Email	Mark Strehlow, URS	Charles Price, CCAPCD	Re: PG&E Delevan

Table 135-1
List of Correspondence

Item	Date	Document Type	From	To	Subject
7	4/24/01	Email	Les Fife, CCAPCD	Mark Strehlow, URS	Meteorological data
8	4/30/01	Email	Mark Strehlow, URS	Les Fife, CCAPCD	Re: Meteorological data
9	5/9/01	Fax	Mark Strehlow, URS	Carol Bohnenkamp, EPA	Met Data Revision to Modeling Protocol – Reliant Energy's Colusa, CA Power Plant Project
10	5/10/01	Email	Mark Strehlow, URS	Les Fife, CCAPCD	Background PM_{10} data question
11	5/11/01	Email	Mark Strehlow, URS	Keith Golden, CEC	Reliant Colusa Power Plant Met Data
12	5/11/01	Email	Les Fife, CCAPCD	Mark Strehlow, URS	PM_{10} Data
13	5/12/01	Email	Mark Strehlow, URS	Les Fife, CCAPCD	Re: PM_{10} Data
14	5/14/01	Email	Tony Servin, CARB	Robert Hughes, CARB and Mark Strehlow, URS	Re: [Fwd: Reliant Colusa Power Plant Met Data]
15	5/14/01	Email	Mark Strehlow, URS	Tony Servin, CARB	Re: [Fwd: Reliant Colusa Power Plant Met Data]
16	5/14/01	Email	Tony Servin, CARB	Les Fife, CCAPCD, cc: Mark Strehlow, URS	Re: [Fwd: Reliant Colusa Power Plant Met Data]
17	5/14/01	Email	Les Fife, CCAPCD	Tony Servin, CARB, cc: Mark Strehlow, URS	Valid met data
18	5/18/01	Email	Mark Strehlow, URS	Les Fife, CCAPCD	Banked ERCs in Colusa Co.
19	5/21/01	Email	Les Fife, CCAPCD	Mark Strehlow, URS	PM_{10} ERCs
20	5/30/01	Email	Mark Strehlow, URS	Les Fife, CCAPCD	Emissions Source Identification for Colusa PP Cumulative AQ Impact Analysis

Table 135-1
List of Correspondence

Item	Date	Document Type	From	To	Subject
21	6/1/01	Email	Les Fife, CCAPCD	Mark Strehlow, URS	AQ modeling
22	6/04/01	Email	Mark Strehlow, URS	Les Fife, CCAPCD	Re: AQ modeling
23	6/5/01	Email	Les Fife, CCAPCD	Mark Strehlow, URS	Rice dryer coordinates and emissions
24	6/6/01	Email	Mark Strehlow, URS	Les Fife, CCAPCD	Re: Rice dryer coordinates and emissions
25	6/11/01	Letter	J. D. "Derek" Furstenwerth, Reliant Energy	Harry A. Krug, CCAPCD	Submittal of Application for Authority to Construct - Colusa Power Plant
26	6/20/01	Letter	J. D. "Derek" Furstenwerth, Reliant Energy	Gerardo Rios, EPA	Submittal of Application for PSD Review- Colusa Power Plant
27	7/26/01	Letter	Harry A. Krug, CCAPCD	Catherine Short, URS	Reliant Energy Colusa Power Plant Project
28	7/30/01	Fax	Les Fife, CCAPCD	Mark Strehlow, URS	Reliant Colusa Power Plant CEC Data Adequacy Review CCAPCD Completeness Letter
29	7/31/01	Letter	Harry A. Krug, CCAPCD	Derek Furstenwerth, Reliant Energy	Completeness of Application for Authority to Construct
30	8/10/01	Letter	J.D. "Derek" Furstenwerth, Reliant Energy	Harry A. Krug, CCAPCD	Submittal of Response to Questions on Application for Authority to Construct- Colusa Power Plant
31	8/28/01	Email	Ed Pike, EPA	Mark Strehlow, URS	EPA meeting Wednesday
32	8/29/01	Email	Mark Strehlow, URS	Ed Pike, EPA	Re: EPA meeting Wednesday
33	8/29/01	Letter	J.D. "Derek" Furstenwerth, Reliant Energy	Ed Pike, EPA	PSD Permit Application – Colusa Power Plant
34	**9/11/01**	**Email**	**Les Fife, CCAPCD**	**Mark Strehlow, URS**	**Colusa Power Plant**
35	**9/12/01**	**Email**	**Mark Strehlow, URS**	**Ed Pike, EPA**	**Reliant Colusa Power Plant - BACT response**

Table 135-1
List of Correspondence

Item	Date	Document Type	From	To	Subject
36	9/12/01	Email	Mark Strehlow, URS	Les Fife, CCAPCD	Etext for Colusa PDOC
37	9/13/01	Email	Ed Pike, EPA	Mark Strehlow, URS	Re: Reliant Colusa Power Plant - BACT Response
38	10/03/01	Email	Mark Strehlow, URS	Les Fife, CCAPCD	Supplemental Information Requested by CCAPCD on 9/26/01
39	10/04/01	Email	Mark Strehlow, URS	Les Fife, CCAPCD	Colusa Diesel Fire Pump PM Concentration
40	11/06/01	Email	Mark Strehlow, URS	Les Fife, CCAPCD	Sampling Protocol
41	11/06/02	Email	Mark Strehlow, URS	Les Fife, CCAPCD	Sampling Protocol (Rev. 1)
42	11/15/01	Email	Mark Strehlow, URS	Les Fife, CCAPCD	Reliant Colusa - Road Paving Preliminary Submittal
43	11/16/01	Email	Kristy Chew, CEC	Mark Strehlow, URS	Re: Reliant Colusa - Road Paving Preliminary Submittal
44	11/20/01	Email	Mark Strehlow, URS	Les Fife, CCAPCD	Reliant Colusa - Road Paving Preliminary Submittal(Rev. 1)
45	11/20/01	Email	Mark Strehlow, URS	Kristy Chew, CEC	Reliant Colusa - Road Paving Preliminary Submittal(Rev. 1)
46	11/28/01	Email	Mark Strehlow, URS	Les Fife, CCAPCD	SO_2 to PM_{10} Offset Ratio in Colusa County
47	11/29/01	Fax	Les Fife, CCAPCD	Mark Strehlow, URS	Copy of CEC letter to CCAPCD Re: Comments on Preliminary Determination of Compliance (PDOC) Colusa Power Plant Project (01-AFC-10)
48	11/30/01	Email	Mark Strehlow, URS	Les Fife, CCAPCD	Resending – Supplemental Information Requested by CCAPCD on 9/26/01
49	12/03/01	Email	Mark Strehlow, URS	Les Fife, CCAPCD	Applicant's comments on Colusa PP PDOC

Table 135-1
List of Correspondence

Item	Date	Document Type	From	To	Subject
50	**12/06/01**	**Fax**	**Les Fife, CCAPCD**	**Mark Strehlow, URS**	**Copy of EPA letter to CCAPCD Subject: Preliminary Determination of Compliance for Colusa Plant**
51	**12/10/01**	**Email**	**Les Fife, CCAPCD**	**Mark Strehlow, URS**	**Delevan ERCs for Colusa Power Plant**
52	**12/19/01**	**Email**	**Mark Strehlow, URS**	**Les Fife, CCAPCD**	**Applicant's Response to PDOC Comments**
53	**12/20/01**	**Letter**	**Brian Walker, Reliant**	**Ed Pike, EPA**	**Request to Initiate Formal Section 7 Consultation**
54	**12/26/01**	**Email**	**Ed Pike, EPA**	**Mark Strehlow, URS**	**Re: Applicant's Response to PDOC Comments**
55	**1/04/02**	**Email**	**Mark Strehlow, URS**	**Ed Pike, EPA**	**Re: Applicant's Response to PDOC Comments**
56	**1/07/02**	**Email**	**Ed Pike, EPA**	**Mark Strehlow, URS**	**Re: Applicant's Response to PDOC Comments**
57	**1/07/02**	**Email**	**Kristy Chew, CEC**	**Mark Strehlow, URS**	**Re: Applicant's Response to PDOC Comments**

Bold indicates response to Data Request 135.

See document "135.pdf" for copies of the items listed in the above table.